Users at PC Expo greet NetPC with half-open arms and get Memphis update, pages 6 and 12

Tivoli scrambles to answer user complaints about complexity and service. The Enterprise Network, page 53

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Sun to link banks via Java

▸ *Web road map to tie legacy apps, stock traders*

By Thomas Hoffman

SUN MICROSYSTEMS, INC. this week will unfurl a plan designed to help banks and brokerages tie together all their financial services via a World Wide Web-enabled architecture.

The Sun Connect architecture is essentially a set of middleware products based on Sun technologies such as Java and JavaBeans. Sun will introduce the road map at this week's Securities Industry Association Information Management Conference & Exhibit in New York.

Sun Connect is Java's first significant foray into a vertical industry, combining Internet content with security needs. There is a strong business case for Java and thin-client computing in areas such as retail branch banking, where big banks typically deploy hundreds of high-cost PCs to loan officers, tellers and other employees.

"If you can save 10% to 20% on PC costs with thin clients, that makes a significant differ-

Sun, page 16

Year 2000 muck mires midrange

▸ *Key obstacles: old code, lack of skills and tools*

By Jaikumar Vijayan

IF YOU THOUGHT you had year 2000 problems on the mainframe, just wait until you check out some of your older midrange systems.

Those machines are vulnerable to all the problems of the mainframe, but there are even fewer tools and skilled people to help fix them. What's more, many of the vendors that developed packaged software for those platforms no longer exist.

"Midrange users need a year 2000 wake-up call," said Brian Richardson, an analyst at Meta Group, Inc. in Stamford, Conn. "They are at least six months to one year behind mainframe shops in awareness of the problem, and they are handicapped by more issues."

Midrange systems such as Digital Equipment Corp.'s VAX/VMS systems, Data General

Year 2000, page 103

INSIDE THIS ISSUE

Bug payment spat sparks debate on Internet altruism

By Sharon Machlis

TO SOME, it was fair compensation for helping to fix a commercial software product. To others, it bordered on blackmail.

Two Danish consultants dickered with Netscape Communications Corp. over payment as a prerequisite to turning over details of a security hole they found two weeks ago in that company's browsers. It was the most publicized departure yet from a model that has existed since the dawn of the Computer Age: If you find a bug, you report it for the greater good, not financial reward.

Some in the Internet community took a dim view of the effort to wring money out of a vendor

Bug, page 103

IS chief cooks up nouveau tech recipe

DORON COHEN, IS chief at TransCanada PipeLines Ltd., unplugged mainframes in favor of client/server technology and helped transform the sleepy utility into an aggressive, $11 billion competitor.

But now he finds that the business is growing and changing so fast, even client/server development cycles can't keep up. So Cohen is speeding things up with Web-enabled applications, reusable components and "disposable databases," while trying to keep IS focused on the business.

Managing, page 69

When **Jose Espinoza** decided to further his **career development** last year, he signed up for Xerox's **Social Service Leave Program.** By putting his technology **expertise to work** in his community, Espinoza gave back to the neighborhood, gave his heart a workout and returned to his company with **newfound leadership skills.**

IT Careers, page 80

UP FRONT

Killing the NC

In a striking display of pre-emptive marketing, PC industry leaders gathered in New York last week and tried to drive a stake through the heart of the network computer (NC).

Their weapon of choice: The NetPC. Conceived in desperation last fall and dribbled out in keynote speeches and press releases ever since, the NetPC is a lame comeback at the vision of the superthin client painted by Sun and Oracle.

From what was shown last week, it's hard to tell the difference between a NetPC and a standard PC with duct tape over the floppy drive. One model even offered the option of a 2G-byte disk. The distinction apparently will be the forthcoming systems management software that somebody will think about getting around to later this year — if they have the time.

That pretty much sums up the PC industry's reaction to the thin-client concept: Bomb the market with white papers and intentions for announcements, then hope the whole thing will go away. They've even come up with a new term — Managed PC — that gets the dreaded "network" word out of the title.

PC makers don't want you to buy a NetPC.

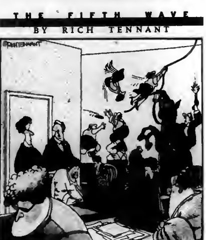
Make no mistake about it, PC makers don't want you to buy a NetPC. Having shown prototypes last week, these companies will now proceed to develop and market these devices with the enthusiasm usually reserved for roadkill. The PC industry hates thin clients. It hates anything that disrupts the endless cycle in which big PCs lead to big software which leads to demand for even bigger PCs.

The industry has now reluctantly turned its attention to the mundane cost-of-ownership issue that customers have known about for years. Last week's NetPC rollouts surely demonstrated that PC makers will bring as little creativity as possible to the process.

Paul Gillin, *Editor*
Internet: *paul_gillin@cw.com*

THE FIFTH WAVE

BY RICH TENNANT



"I DON'T KNOW – SOME PARTS OF THE NETWORK SEEM JUST FINE, AND OTHER PARTS SEEM TO BE COMPLETELY OUT OF CONTROL."

E-mail Rich Tennant at theswave@tiac.net

Guide seeks price plan

▸ *User group tries to standardize licensing*

By Tim Ouellette

ONE USER GROUP's attempt to standardize software contracts, from mainframes to desktops, may give users a chance to piece together the software license jigsaw puzzle found at most large businesses.

The idea, according to leaders at the Guide International Corp. user group, is to combat rising software costs, winnow the wild variation in license types, terms and definitions currently in vogue among vendors, and spur vendors to adopt clearer usage-based licensing policies.

Guide's advocates said doing this could save some users millions of dollars by cutting out ineffective applications and unused licenses. But a lot depends on how many vendors actually buy into the concept.

For example, Rory Dowler, supervisor of MIS operations at Ottawa Hydro, said moving to a more powerful mainframe will increase the Ottawa utility's annual software costs by about $42,000 because the licenses are based on engine size, not application usage.

"I cannot see how I can get a $42,000 performance improvement out of the new machine to make up for it," Dowler said.

Guide, a 1,100-member IBM large systems user group in Chicago, is spearheading a project to create a framework, called License Use Management, that does the following:

- Lets users focus on development issues, not tracking tools.
- Lets tools capture data from any platform or vendor.
- Lets users choose applications based on need, instead of what monitoring tool works with their software.
- Gives users flexibility in license negotiations.

By September, Guide hopes to deliver a specification for software license management that clearly defines traditional license jargon and standard ways to track software use.

Major large systems software vendors such as IBM, Boole & Babbage, Inc., Compuware Corp. and Novell, Inc. are working with Guide on the standard, although desktop vendors must also be included.

"We have to do a better job of managing software costs, and that means managing licenses," said Wynn Pope, an information systems manager at a large manufacturing firm and a participant in Guide's License Use Management project.

Now, many IS departments are left scrambling to monitor the mess, with a large number of sites unclear as to what software they have, what they are paying for and what they actually need, especially for their desktop systems [CW, June 9].

So far, the effort has been backed by mainframe-class software vendors, but the group plans to seek participation in the framework by others, including desktop vendors.

CROSS-PLATFORM TOOLS

Although monitoring tools exist today, they don't cover all platforms and application types and can often help only if users are under a specific type of licensing deal, according to a Guide requirements document.

For example, Blue Cross/Blue Shield of Minnesota expects to save more than $1 million, thanks to a software monitoring tool from Isogon Corp. in New York. But the tool only checks usage for mainframe-based applications.

And some large user sites have begun dabbling in IBM's mainframe clustering scheme called parallel sysplex to lower software costs. But there is still work to be done in setting up and maintaining the cluster, and not all vendors have yet optimized their packages to run in a cluster environment.

The Guide specification will give users a consistent way to track usage across different platforms — from mainframes to PCs — without restricting them to a specific kind of license structure, said Jim Lackey, an IS manager at a large government agency and head of the Guide project.

Software vendors will have to build hooks and identifying codes into their products that will allow the applications to be tracked separately. Complying license management tools can then monitor any applications that comply with the standard.

But some observers said the ball is still in the vendors' court.

"IBM still lets model groups [with licenses based on the size of a machine] exist, so people are force-fitting systems to get at certain software pricing levels," said Carl Greiner, an analyst at Meta Group, Inc. in Stamford, Conn.

Greiner said he doesn't expect companies such as IBM to completely do away with machine-based licenses until at least next year, although piecemeal efforts are already on the way from some vendors [CW, March 31].

Others said Guide's efforts are a way to spur vendors to move from machine-based to usage-based pricing.

"Usage-based pricing is critical [to lower mainframe software costs], but we haven't had the infrastructure to do it yet," which this project could provide, said Karen Cone, an analyst at Gartner Group, Inc. in Stamford, Conn.

As with any standards effort, analysts are skeptical about fast acceptance from the market. The trick will be to get as many vendors as possible onboard, and Guide is counting on large user sites to help force vendors' hands.

"We are working with large sites like AT&T Corp. to get them onboard, to help us push vendors," Lackey said.

For example, Lackey said his agency won't deal with vendors that don't work within the License Use Management framework. "Once the standard is in place, we will have a policy that all our software vendors must comply with it," Lackey said. □

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Big Blue to boost AS/400's flexibility

▸ *Wireless support and more robust terminal emulation added*

By Bob Wallace

IBM WILL SOON make available a raft of new devices and enhancements that can greatly expand the flexibility of the AS/400 through more robust terminal emulation and wireless support.

By boosting the versatility of the AS/400 — about 425,000 of which are in use today — IBM will let users squeeze even more value and performance out of the system.

Bill Terrell said he is excited about wireless support for the AS/400.

"We've got a lot of concrete and steel in here, and wireless technology means we don't have to worry about knocking any down to run wires," said Terrell, chief information officer at Kennebec Valley Health in Augusta, Maine. "The name of the game in patient care is mobility, and wireless enables that."

LOOK, NO WIRES

New versions of IBM's Portable Transaction Computer Models 5SO, 5LO, DSO and DLO will let mobile users access AS/400s without wires. When the machines are equipped with a new terminal emulation program, users can access Ethernet and Token Ring LANs.

For users who need to link two or more Token Ring LAN segments without wiring, IBM plans the 2480 Token-Ring LAN Bridge Access Point.

IBM also plans three new adapter cards — the 5250 Express ISA Adapter, PCI Adapter and PC Card — that can provide four times the throughput (1M bit/sec. to 4M bit/sec.) for terminal emulation compared with current models.

Each can support seven AS/400 sessions, rather than two. The cards also fit older System/36 and System/38 minicomputers, about 100,000 of which are still in use.

IBM will also come out with the 7299 Express Hub for AS/400, which conserves ports on the AS/400 by using only one port and letting as many as 14 desktops connect through it. But some models can be used only for short distances.

IBM also plans to increase user access to host information with the 5250 Express Program Version 4.0 for PCs.

When used with the new adapter cards, it provides up to seven concurrent sessions to AS/400, AS/400 Advanced 36 or System/36 hosts. ☐

> **"We've got a lot of concrete and steel in here, and wireless technology means we don't have to worry about knocking any down to run wires."**
> **– Bill Terrell, Kennebec Valley Health**

Internet team cracks 56-bit encryption code

By Sharon Machlis

IN WHAT may be the largest nongovernment computing effort ever mounted over the Internet, an ad hoc team using thousands of far-flung computers cracked a message coded with a government-standard encryption method.

That encoding scheme, 56-bit Data Encryption Standard (DES), is used by many financial institutions and government agencies to safeguard information sent across networks. The decoding effort lasted four months.

"I don't think people have to panic, but it's time to consider how we are transmitting and protecting our data," said Rocke Verser, a contract programmer in Loveland, Colo., who wrote the software used in the decoding effort.

Verser launched the project in response to a $10,000 challenge issued by RSA Data Security, Inc., an encryption software vendor in Redwood City, Calif. At its peak, the code-cracking effort involved 14,000 computers checking into Verser's server each day to get a batch of 56-bit keys to check.

The "brute-force" attack involved trying every key possibility to read the message — and at 56 bits, there are more than 72 quadrillion of them (72 followed by 15 zeros). A programmer in Salt Lake City using a 90-MHz Pentium PC found the correct key after less than 25% of the potential combinations were attempted.

The financial industry uses a better implementation of DES than that used in the challenge, said Kawika Daguio, a payment systems expert at the American Bankers Association in Washington. "At a minimum, it makes any attack at least twice as hard," he said.

In addition, Daguio said the Federal Reserve uses "triple DES" with 112-bit keys for some transactions. The Fed also has a plan to move all its data to the stronger format, as does the financial industry at large. But millions of card-swipe devices still use the 56-bit coding and don't change their keys regularly, he said.

Critics of Clinton administration encryption policies, including RSA, cited the decoding as proof that U.S. companies must be allowed to export stronger encryption software without strings attached.

HARD TO COPY

But other observers noted that it wouldn't be easy for an illegal effort to duplicate Verser's successful decoding, because the work of Verser's team was quite public and because the average hacker doesn't have access to thousands of desktop machines.

Verser's effort began when he posted the idea of a decoding effort on a single mailing list.

It was theoretically known that 56-bit encryption could be cracked by a brute-force attack within months, as computers have gotten more powerful; DES is a 20-year-old standard. ☐

Corrections

In "IBM to release OpenVMS middleware" [CW, June 2], the location of Level8 Systems, Inc. was incorrectly given as Montreal. Level8 is headquartered in New York.

In the review "Pentium II PCs: Strong performers" [CW, May 12], the L2 cache speed for the Pentium II was incorrectly listed as 66 MHz. The cache speed should be the same speed as the processor.

Making book on 'net

From customizing college textbooks to tracking imports and exports, McGraw-Hill does it all, thanks to Chairman and CEO Joseph L. Dionne's (left) and CIO John Kerin's trust in intranets, the Web and 'net technologies.

In Depth, page 77

Applix to pump up its low-key OLAP server

By Craig Stedman

APPLIX, INC. this week plans to add multiprocessor support and relational data analysis capabilities to its TM1 decision-support server, a low-key product that the company is trying to pump up.

TM1 is little-known compared with rival online analytical processing (OLAP) products from companies such as Oracle Corp. and Arbor Software Corp. But Westboro, Mass.-based Applix has signed bundling deals with Comshare, Inc. in Ann Arbor, Mich., and several other analysis tools vendors since last fall. Applix also plans to make a bigger marketing push with the new TM1 Server 7.0.

The multiprocessing capabilities should let TM1 support more end users, Applix officials said. Users looking to analyze business information will also be able to keep the data in relational databases instead of storing it in TM1's built-in multidimensional tables.

Shipments of TM1 Server 7.0 are due in October. Pricing starts at $25,000 for five users.

Jim Bell, manager of reporting systems at Occidental Chemical Corp. in Dallas, said the addition of relational access could make it easier to link his 500 TM1 users to business data as the company starts implementing SAP AG's R/3 applications later this year.

If the users can build TM1 analysis cubes directly from the relational data, "then I don't have to create all that stuff myself" in TM1's database, Bell said. But Occidental would have to make sure performance didn't suffer, he added. ☐

LSI Logic's Nicole Crawford says her $3M extranet paid for itself in 18 months. Intranets, follows page 40

Steve Roberts says L. L. Bean recreates its folksy culture online. The Internet, page 47

Southernview's Charles Hebert says building an enterprise management system has to get easier. Page 14

In this issue

NEWS

OPINION

TECHNICAL SECTIONS

CORPORATE STRATEGIES

THE INTERNET

THE ENTERPRISE NETWORK

SOFTWARE

SERVERS & PCs

FEATURES

MANAGING

BUYER'S GUIDE

CAREERS

ETC.

> "For online publishing, the Mac is the only choice, regardless of what the PC weenies are saying."
>
> Steven Noreyko, webmaster,
> The Star and The News newspapers in Indianapolis

See story, page 16

ON THE HOT SEAT

Digital CEO fires back

By Jaikumar Vijayan

Robert B. Palmer is a man under the gun these days. As CEO of Digital Equipment Corp., he has come under increasing fire from unhappy users and investors over what they claim is the company's excruciatingly slow turnaround. Palmer has managed to pull off a string of modestly profitable quarters recently, but product and service revenue has stalled, the flagship Alpha chip is going nowhere and share prices are much lower than when he took over. The result is near-constant speculation that Palmer may have very limited time left at the helm to deliver the goods. In an E-mail exchange with Computerworld *last week, Palmer defended his record and examined some of the issues facing his company.*

On the sharp criticism dogging the pace of Digital's turnaround:
Those who characterize our turnaround as slow may not completely understand the complexity of the task we faced.

At the time I was privileged to take on this role, headlines were raising questions about Digital's future. One of the headlines I recall very vividly was, "Will DEC survive?" The questions were valid. We had a hugely bloated infrastructure that was appropriate for the competitive realities of the 1980s, but not the 1990s. At that time, we did not have a clear strategy, and we had not embraced open systems or PCs. We really were in a great deal of trouble. Although the turnaround is not complete, we have made a lot of progress.

On where this progress has been made:
We [have] devised a strategy that positions Digital for growth, focusing on high-performance 64-bit Unix platforms, Windows NT and the Internet. The company is strong financially. We have achieved an operating profit in nine of the last 10 quarters. We changed the culture of the company to one that has much greater accountability.

On Digital's plans for the Alpha chip:
The dramatic growth that we hope to achieve will be based on the success of Windows NT and on the increasing market trend toward "visual computing." We expect Alpha to attract the early adopters of visual computing in the animation, online desktop publishing, video editing, image processing, multimedia authoring and game developer markets.

Alpha with Windows NT will be an attractive alternative to Macintosh and [Silicon Graphics, Inc.] workstations in these markets.

Digital Equipment CEO Robert B. Palmer:

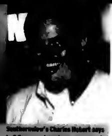
"The question, 'Will DEC survive?' was valid"

On the Intel Corp. lawsuit:
Our issue with Intel is an intellectual property dispute, and we believe our position is very sound. We hope that as the initial emotion around the topic dissipates, we will return to a normal commercial relationship with Intel. We expect that Intel will continue to support Digital, and we are committed to continue to support Intel as a customer for Digital products and services. Our customers can be confident about our ability to obtain an adequate supply of chips to meet their needs.

On whether selling or merging the company is an option:
We are obviously of sufficient size to continue to be successful as an independent entity, and that's the strategy we're executing. We clearly have the critical mass, the balance-sheet strength, the financial strength and the resources necessary to remain a successful independent company. □

[illegible] Glenda Crawford says her $3M extranet paid for itself in 18 months. Intranets, follows page 48

Steve Roberts says L. L. Bean re-creates its folksy culture online. The Internet, page 47



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In this issue

NEWS

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STELLA JOHNSON

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JOINING THE RANKS

Pricing comparisons of the three leading Unix operating systems with Microsoft's upcoming Windows NT Enterprise Edition for an eight-processor SMP machine

Feature	HP-UX 10.x	IBM AIX 4.2	Solaris 2.5	NT Enterprise*
Web server	$1,295	$295	Included	$3,999
Upgrade to 25 users	$4,900	$2,185	Included	Included
Clustering	$11,900	$10,000	$7,400	Included
Message queue	$1,495	$1,495	$1,495	Included
Transaction server	$2,999	$2,999	Planned	$7,999
Total	$22,589	$16,974	$8,995	$11,998

* Pricing is preliminary

NT Enterprise Edition will add clustering, scalability and cost

By Laura DiDio

MICROSOFT CORP. will take users on a ride up the price escalator as it seeks to break through the enterprise ceiling with its next versions of Windows NT and the SQL Server database software.

Microsoft wouldn't officially confirm pricing. But preliminary pricing released by Microsoft to the Transaction Processing Council (TPC) — a standards body specializing in benchmark testing — indicates that the list prices for Windows NT Enterprise Edition will more than double the current standard versions of Windows NT 4.0 and SQL Server 6.5 — a 113% increase. The product will ship next quarter.

OPERATING SYSTEMS

At a combined price of $11,998 for NT Enterprise Edition plus SQL Server Edition, NT will still cost less than some of its competing Unix rivals. But Sun Microsystems, Inc.'s Solaris will become the lowest-priced operating system in certain configurations (see chart above).

CLUSTERING SUPPORT

NT Enterprise Edition will feature built-in, two-way fail-over clustering support to ensure 100% network uptime; support for 3G bytes of memory compared with the standard 2G bytes in Windows NT 4.0; and the option to buy one- to eight-way symmetrical multiprocessing (SMP) for greater scalability. The current release of Windows NT Server scales to only four processors.

Gartner Group, Inc. in Stamford, Conn., estimates that about 20% of today's approximately 20 million Windows NT users are large accounts — the transaction-heavy enterprise users in client/server environments that are most likely to buy this version of NT. How quickly they will do so is the question.

In interviews last week with 11 Fortune 1,000 Windows NT 4.0 users, *Computerworld* found only four had immediate plans to purchase the Windows NT and SQL Server Enterprise Editions.

"We're still so focused on our current Windows NT 4.0 and SQL Server 6.5 rollout and haven't considered the Enterprise Editions," said Bill Teague, director of product management at Nasdaq in Washington.

A handful of users who are now beta-testing the enterprise version said they need the built-in clustering, transaction processing and additional memory support.

Three of Windows NT Enterprise Edition's 300 beta-test users said the price increase is more than offset by the additional features — particularly the two-way fail-safe clustering capability.

"We won't think twice about spending $12,000 for a 25-user copy of Windows NT Server and SQL Server Enterprise Editions," said an information systems manager at a top East Coast brokerage, who requested anonymity. The brokerage firm, which has 10,000 users, has been testing the forthcoming Microsoft enterprise packages for the past month with "excellent results," he said.

Other users voiced skepticism about the high-end capabilities of the NT and SQL Server Enterprise Editions, saying they will stick with their Unix systems.

"We don't need Microsoft's Enterprise versions at this point. We have a large installed base of HP-UX. We can't make a business case for switching to the Windows NT Enterprise Edition now," said Jeff Dazell, LAN administrator of network services for corporate support at Dana Corp. in Toledo, Ohio.

According to the figures Microsoft recently supplied to the TPC, the 25-user version of Windows NT Server Enterprise edition will cost $3,999 compared with $1,468 for the comparable 25-user version of Windows NT 4.0. The SQL Server Enterprise Edition will cost $7,999 for a 25-user license vs. $4,159 for SQL Server 6.5.

Jim Clark, a consulting systems engineer at a large California bank with 60,000 Windows NT users, said he hopes to get a substantial discount off of the list price and will consider it money well-spent.

The clustering capability will actually help the bank minimize costs by running applications on both servers to maximize operations, he added. "If the networks are down for any reason, our business stops. If one center processes 10 loans worth $100,000 in 10 minutes — that's lost revenue if the networks fail for lack of clustering and redundancy," Clark explained. □

Memphis beta on track

By April Jacobs

WHEN THE BETA version of Microsoft Corp.'s Memphis hits the streets next week, users will find Internet Explorer integration, a common user interface with Windows NT and key manageability at the top of the list of features slated for the next version of Windows 95.

The Redmond, Wash., company hopes potential users will also like its support for digital data and new peripheral standards such as the Universal Serial Bus and the ability to support more than one monitor.

However, users who haven't yet seen the beta version are most focused on improvements designed to ease administration and reduce the cost of ownership. These include management features intended to allow systems administrators to automate application, BIOS and operating system updates as well as remotely troubleshoot desktops.

Memphis also will let information technology managers replicate users' screens to check for problems and then remotely walk them through any tasks they may need to perform.

ATTRACTIVE FEATURES

"I'm most attracted to the NetPC because of the software that will be in Memphis and the manageability it brings with it," said Gary Galvinas, chief information officer at Kmart Co. in Troy, Mich.

The management features are part of Microsoft's Zero Administration initiative, which will be embedded into its Windows NT 5.0 and Memphis operating systems in the first half of 1998. They are available now in an incomplete kit for NT 4.0 and Windows 95.

Zero Administration is a set of management tools that will let systems administrators remotely distribute software, configure systems and troubleshoot desktops. It was designed to allow systems administrators to tightly control users' access to applications and configuration features, which are virtually unlocked in current Windows 95 systems.

Hardware OEMs, such as Dell Computer Corp. in Round Rock, Texas, showed off initial Zero Administration Kit features running on an NT 4.0 Workstation. □

KEY MEMPHIS FEATURES

- **Integration with Internet Explorer 4.0 for Web interface**
- **Support for users to work on multiple monitors for multitasking and presentation support**
- **Automatic System Update for downloading latest driver and upgrade supports to users' desktops**
- **Drivers located in hard drive file so systems managers won't need to reload Windows to support new or different drivers**

Crypto-bill sparks ire

By Sharon Machlis
WASHINGTON

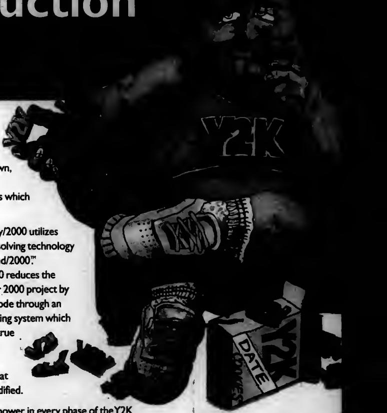
The U.S. Senate Commerce, Science and Transportation Committee last week quickly approved the controversial Secure Public Networks Act, which is meant to break years of gridlock over encryption policy.

The legislation is billed as a compromise that balances the interests of privacy advocates and law enforcement concerns. In addition to penalties for network privacy abuses, the measure would require encryption key recovery throughout the federal government and any network built with federal funds.

That means a third party would have access to decrypting keys in case law enforcement officials need access to network traffic.

The bill, sponsored by Sen. John McCain (R-Ariz.) and Sen. Robert Kerrey (D-Neb.), was blasted by computer industry officials and privacy advocates who oppose requiring third-party access to encryption keys.

"It's worse than anything that's been discussed or proposed so far," said James Bidzos, president and CEO of RSA Data Security, Inc. in Redwood City, Calif.



Y2K
Y2K
DATE
COOKIES

Users bracing for middleware muddle

▸ *Central management is the next step*

By Tim Ouellette

AS USERS PUSH messaging middleware to the forefront of some enterprise integration plans, a host of management, technological and political issues are rearing their heads.

Messaging middleware, such as IBM's MQSeries, sends data between applications via message queues, which deliver the data even if the receiving server is down (see story at right).

Bellcore's Gary Ward

People are concerned about how to manage MQSeries for critical apps

Most MQSeries sites have been piloting the middleware in limited tests, but observers said this year the pressure is on as users base larger integration efforts on the product.

Candle Corp., for example, next week is slated to announce MQSecure, a security add-on to MQSeries.

It adds user authentication, message validation and encryption to MQSeries. Those are crucial security features for business-to-business and Internet applications that connect to legacy systems.

"People are starting to be more concerned how to manage MQSeries as they use it for more critical applications," said Gary Ward, a senior systems engineer at Bellcore, an MQSeries site in Morristown, N.J.

Bellcore uses MQSeries to help integrate its various operations, and includes it to deliver software services to its clients.

With such efforts, management of the far-flung data messages becomes a problem if one gets lost.

And without integrated tracking tools, it is hard to detect a major problem until the applications begin to spit out bad data.

The push to use messaging middleware to carry data across a growing number of distributed servers can also require additional budgeting for programmers or new add-on products. That could create friction among departments whose applications and platforms must share data.

"MQSeries doesn't handle an enormous amount of administration and synchronization. It is very low-level plumbing, so users have to write a lot of code on top of it to do a specific function," said Ezra Gottheil, a senior analyst at Hurwitz Group, Inc. in Newton, Mass.

HELP ON THE WAY

To help oversee growing messaging middleware installations, systems management firms such as Candle and Boole & Babbage, Inc. offer tools that monitor and configure MQSeries networks.

For example, Tactica Corp. in Portland, Ore., is planning to give MQSeries better remote user access and data synchronization services later this year with an update to its Caprera software.

But users must be prepared to expend more effort if they want to push middleware to more complicated and critical uses.

"Using add-on products gets you deeper into integration efforts, but you have to have a healthy budget and the dollars to spend to get it done," said Bill Murphy, an analyst at The Standish Group International, Inc. in Dennis, Mass.

Users also must manually coordinate a transaction between MQSeries and other IBM middleware, such as CICS and Encina, said Anne Thomas, an analyst at Patricia Seybold Group in Boston.

A LITTLE TLC

"MQSeries' CICS integration is good, but you need to manage it. It doesn't take care of itself," said Tom Loane, chief information officer at Alamo Rent A Car, Inc. in Fort Lauderdale, Fla.

Alamo uses CICS and MQSeries to update car rental prices across the country, and MQSeries manages rental orders between the mainframe and the company's World Wide Web site.

But not all middleware issues are technical.

If a company is developing MQSeries links across two very different domains such as mainframes and Windows NT servers, "the developer can get caught in a holy war between the two sides," Ward explained. □

FAQs: Messaging middleware

Analysts expect the application messaging market to jump from about $150 million last year to $1 billion by 2000, led by IBM's MQSeries. All told, there are currently about 2,000 installations of MQSeries.

Q: ***What is messaging middleware?***
A: Messaging middleware, also called application or asynchronous messaging, handles the movement of data messages among applications on different platforms, masking the communications issues that arise among the various systems.

Q: ***How does it work?***
A: Messaging middleware such as MQSeries places data messages in queues so if the receiving application isn't available, the message won't be lost. The receiving application later retrieves any messages in its queue and uses the data accordingly.

Q: ***Who needs messaging middleware?***
A: MQSeries started in legacy shops that wanted to enable communication among different proprietary systems. It has since added more than 20 platforms, ranging from Unix to Windows NT servers. Shops with many different platforms running critical applications may consider middleware to ensure that the high volume of data messages among the applications is delivered properly.

Q: ***What other types of messaging middleware are available?***
A: Publish/subscribe middleware, similar to the "push" technology popular on the World Wide Web, is another form of messaging that lets users and applications subscribe to certain types of messages so they don't have to retrieve the specific message or data they want.

SHORTS

Unisys' Unruh to step down

James Unruh will step down as chairman and CEO of struggling Unisys Corp. in Blue Bell, Pa. He will remain CEO until a successor is named and will step down as chairman next April. In six years as chairman, Unruh has overseen four restructurings, the closing down of many plants and thousands of layoffs.

Communicator 4.0 patch out

In response to a browser security hole, Netscape Communications Corp. has issued a free bug fix for its Communicator 4.0. A fix for Navigator 3.0 will be ready next month. The Mountain View, Calif., company will gauge user demand before posting a bug fix for Navigator 2.x.

Court nixes IBM outsourcing pact

An appellate division of New York's State Supreme Court last week ruled that Westchester County, N.Y., illegally entered into a 10-year, $100 million outsourcing agreement with IBM earlier this year. The ruling also supported an earlier decision by State Supreme Court Justice Nicholas Colabella, who found that County Executive Andrew O'Rourke lacked the authority to grant the deal to IBM [CW, Feb. 3]. The appeals court decision still leaves unresolved who will perform those services.

Gateway gets ALR for $190M

Gateway 2000, Inc. jumped into the corporate server market by acquiring Advanced Logic Research, Inc. (ALR) for $194 million, or $15.50 per share. North Sioux City, S.D.-based Gateway will use ALR's server base to expand its corporate customer base. ALR, in Irvine, Calif., makes multiprocessor PC servers. Gateway officials said the company would keep the ALR name and channels and offer servers under the Gateway name.

Microsoft Java to access Windows

Microsoft Corp. officials said the company will build access to all Windows functions in to its version of Java, Sun Microsystems, Inc.'s Internet development language. J/Direct will give Java applets complete access to a user's computer, including the ability to read and write to disk files and run other applications. Java programmers will use the Windows functions through a Java class library that will be built in to Microsoft's Visual J++ and development tools from Sybase, Inc. and Borland International, Inc.

PC firewalls to hit market

Atlanta-based Software Builders will bring firewall technology to the PC next month with PC Secure. The "personal firewall" package will let individuals or workgroups establish security rules and receive notification of unauthorized access requests. It will cost $59.99.

SHORT TAKES Cisco Systems, Inc. is beta-testing Cisco Resource Manager for remotely managing its routers from a browser on the corporate intranet. The software will ship next month for NT or Sun's Solaris. ... Perot Systems Corp. in Dallas will purchase Internet start-up Nets, Inc., which recently filed for Chapter 11 bankruptcy, for $9 million. ... Digital Equipment Corp. filed a motion to gag its former employees who are now at Intel Corp.

Oracle Express Server 6.0
Oracle Express Objects 2.0
Oracle Financial Analyzer
Oracle Sales Analyzer

Microsoft vows to unscramble E-mail mess

▸ *Messaging clients get common interface, compatibility boost*

By Barb Cole-Gomolski

RESPONDING TO CUSTOMER complaints, Microsoft Corp. last week announced plans to give its multiple electronic-mail clients a common user interface and vowed to make them work better together.

Customers said the company's multiple messaging clients are confusing and hard to deploy because they aren't completely compatible.

Under the plan, Redmond, Wash.-based Microsoft will brand all its messaging clients with the Outlook name, give them a common user interface and ensure that features such as calendaring and scheduling work across the platforms. The move is expected to reduce training costs and allow companies to migrate to the clients in phases.

"We've been pushing Microsoft to standardize its whole [mail] client strategy," said Bob Cavallaro, director of advanced technology at American Insurance Group in New York, which is deploying 10,000 Outlook seats. Giving the products a consistent interface will reduce support costs, Cavallaro said.

The plan also could help companies phase in migrations to the full-featured Outlook client, which runs only on the 32-bit Windows platform. That client strategy lets users adopt Outlook without having to move to Windows 95.

"Microsoft had too many clients, and they appear to be resolving that."
– Rob Enderle,
Giga Information Group

"Microsoft has finally realized that they have created an E-mail mess," said Mark Schmidt, information systems director at Heritage Broadcasting Group, which runs television stations in Tustin, Mich. Schmidt said he ran into a snag earlier this year when the company moved users off Microsoft's Schedule+ calendaring software to Outlook because the calendaring and scheduling component of Outlook wasn't completely backward-compatible with Schedule+.

Indeed, there are several Microsoft messaging clients floating around at large sites. Besides Outlook, the company sold an Exchange client, which ran on Windows 3.1, Windows 95 and Macintoshes, and a mail and news reader in its Internet Explorer World Wide Web browser. For those users, calendaring and scheduling was available in the Schedule+ application. Some sites also use the Windows Messaging System Inbox that is included with Windows 95.

"Microsoft had too many clients, and they appear to be resolving that," said Rob Enderle, a senior analyst at Giga Information Group in Santa Clara, Calif.

The plan calls for five clients. That is still a high number, but users said it is acceptable as long as the clients share Outlook traits.

The clients include Outlook, Outlook Express, Outlook Web Access, Outlook for Windows 3.1 and Outlook for Macintosh. The older clients — Exchange client, Schedule+ and the Windows Messaging System Inbox — will be supported, but there won't be further development on those platforms, Microsoft officials said.

Meanwhile, Microsoft officials also said last week that a service pack for Exchange 5.0 will be available for download off the Web this week.

The service pack is a collection of about 150 fixes and improvements, including support for multiple off-line address books, company officials said. □

Q: Where can you find the world's fastest CD-ROM Networking System?
PROCOM
53X
A: www.procom.com/53X

PC EXPO

NetPCs go vertical; remote use questioned

By April Jacobs

THE NETPC, Microsoft Corp. and Intel Corp.'s answer to the network computer, received a qualified welcome last week from users already struggling to make sense out of a crowded, confusing desktop market.

A dozen vendors lined up at PC Expo in New York last week to show off variations of the NetPC specification, none of which is likely to hit the streets until late this year. Most of the systems are targeted — at least initially — at vertical markets that deal with limited counter space, high security needs and specific, limited applications, such as banking and insurance.

Unclear to users attending the event is how or if the NetPC will fit into an increasingly mobile workforce. Another question was pricing, although it will likely range from $1,000 to $1,500.

UNANSWERED QUESTIONS

Few answers were forthcoming on those issues from a crew of vendors that included Dell Computer Corp. in Round Rock, Texas; Compaq Computer Corp. in Austin, Texas; IBM in Armonk, N.Y.; Hewlett-Packard Co. in Palo Alto, Calif.; Gateway 2000, Inc. in North Sioux City, S.D.; and NEC Corp. in Mountain View, Calif.

But that didn't stop potential users such as Pennzoil Co., Kmart Corp., The Prudential Insurance Company of America, Bose Corp. and others from showing up to look at — and in some cases tout — the potential benefits of the NetPC, including its lock-down, hassle-free form and its software management underpinnings.

"We look at the NetPC as a way to lower total cost of ownership," said Britt Mayo, Pennzoil's director of information technology. Mayo said because Pennzoil's IT department technically has a zero-dollar budget, all costs are paid for by the different business groups within the company. That, he noted, drives everyone to look for ways to lower computing costs.

In fact, most users found the software underpinnings for the NetPC more attractive than its hardware features. These include management technology in the form of Microsoft's Zero Administration for Windows, due in full form with the release of Windows NT 5.0 and the next version of Windows 95 — code-named Memphis — next year, as well as drill-down and troubleshooting technology from Intel and each vendor that makes the NetPC.

Unlike a network computer, the NetPC has a hard drive. It also features a locked-down design aimed at preventing users from adding applications or copying data to or from a floppy disk or CD-ROM drive. It comes in a variety of configurations, ranging from Pentium with MMX to Pentium II-class machines.

REMOTE TROUBLESHOOTING

Several users cited the NetPC's potential to reduce desktop visits, through its remote troubleshooting features, as another attractive feature.

"We want to build models for our desktop software configurations and consistently deploy those across the enterprise," said Myles Trachtenberg, vice president and chief information officer at Prudential Health Care, a division of the insurance company.

Microsoft tried to pound home that type of strategy and its benefits to users last week in demonstrations. The company also committed to aligning its various operating systems, including the different versions of Windows NT, Memphis and Windows CE, to scale from the top to bottom of an enterprise.

Trachtenberg said software distribution at the firm is very labor-intensive, requiring hundreds of systems people to go out to desktops quarterly to update and reconfigure machines. "We don't have enough people to go around," he said. He added that features in Microsoft's Zero Administration initiative, as well as those in Intel's Wake-on-LAN management software, should help counter that.

But others said much of the underlying software management that makes the NetPC attractive will be found on "plain-Jane" PCs that vendors will begin rolling out over the next several months. Dell, for example, demonstrated machines running Microsoft's Zero Administration Kit for Windows NT 4.0 Workstation, which should be available this week.

"We have a huge interest in Zero Administration, but to launch an entirely separate class of hardware to sell it seems confusing. I'm not sold yet," said an IS manager at a large New York-based bank, who requested anonymity. □

NetPCs will feature

- Lock-down box with easy-service features, such as pull-out chassis for upgrades.
- No floppy or CD-ROM drives to prevent users from downloading or copying files from external drives.
- Full-powered PC capabilities, including Pentium with MMX and Pentium II processors. Support for latest peripherals, including Universal Serial Bus ports.

NetPC features

The following criteria give the NetPC its manageability and security:

- Standard remote boot and preboot allows for network boot and management agents.
- Instrumentation and systems monitoring will let users avoid problems, troubleshoot and enhance asset management.
- Wake-on-LAN technology from Intel and power management allow for off-hours maintenance.
- Microsoft's Zero Administration for Windows, which will be embedded in Windows NT 5.0 and Memphis. It is also available in kit form for Windows NT 4.0 and Windows 95. It will allow for enhanced management, including troubleshooting and remote and automatic software distribution.

— April Jacobs

Tool problems put bumps in the road for Oracle8

▸ *Oracle faces doubts on component plans*

By Craig Stedman

ORACLE CORP. wanted to be firing on all cylinders when it finally launched the Oracle8 database this week. But the company's development tools business is spinning its wheels.

Questions about Oracle's plans for moving into the component-based development arena abound in the wake of a recent decision to put its much-hyped Sedona tool on hold. The uncertainty comes at a time when sales of Oracle's tools are already slacking off. A 7.5% decline in tools revenue was the one blot on the solid fiscal 1997 financial results that Oracle reported last week (see related story, page 32).

At the rollout of Oracle8 in New York, Oracle officials said, the company will try to convince users that upcoming technology will enable its tools to handle the rigorous job of building multitier network computing applications with object technology even though Sedona is in limbo [CW, June 16].

IMPORTANT TO USERS

Having tools that more fully complement Oracle's Network Computing Architecture scheme for object-based distributed applications "is something that's important to us," said Steve Boley, vice president of research and development at Integrated Medical Networks LLC in Irving, Texas.

Oracle's mainstay Developer/2000 tool has improved greatly in the past couple years, Boley said. But developers need to be clever to make the tool work for applications that go beyond two tiers, he added. "You just have to figure out a different way to skin the cat," he said. Boley's company is developing distributed medical software for multisite health care providers.

Dunlop Tire Co. in Amherst, N.Y., plans to start using Developer/2000 this year to build Oracle applications. "But I don't see in the marketplace that it's the hot tool to use right now," said Hugh Allan, manager of information technology at Dunlop. "I don't see many developers flocking to Developer/2000."

"We understand there's a lot of questions [about our strategy]," said Steve Ehrlich, senior director of tools product marketing at Oracle. Distributed object applications are "definitely the future" because they promise to let users tie together multiple systems in a coherent whole that can be easily maintained and modified, he said.

OBJECT SUPPORT

Oracle last month released a World Wide Web-enabled version of Developer/2000. And Ehrlich said the Redwood Shores, Calif., company this week will outline plans for augmenting its client/server tools with more complete object and network computing support late this year or early next year.

Included will be new versions of Developer/2000 and its companion Designer 2000 modeling tool, plus a separate product for modeling Oracle8 objects. Oracle is also working on a component builder tool that would do some of the jobs Sedona was designed for, Ehrlich said.

Thanks to its big database market share, Oracle is the leading vendor of fourth-generation language tools, according to International Data Corp. in Framingham, Mass. But some analysts remain skeptical that Oracle can take its existing tools beyond the two-tier world. □

Developer/2000 and Designer/2000

Strengths	Weaknesses
Tight integration with Oracle databases	Little presence beyond Oracle database users
High level of built-in functionality	Oriented to building two-tier applications
Automatic generation of application code	No support for multiple programming languages

HP tilts OpenView at enterprise

▸ *Users seek integrated tools that can manage more than network*

By Patrick Dryden
ANAHEIM, CALIF.

MANAGE OVERALL service levels from a single pane of glass.

That mantra was repeated by information systems managers and Hewlett-Packard Co. last week at OpenView Forum, the annual conference for users of HP's tools for managing distributed client/server networks.

For IS managers, it is a mission statement. "We're trying to lift the walls separating our network, systems and application teams and the help desk to better serve our global users," said Tom Reinsel, network design and management analyst at Eli Lilly and Co. in Indianapolis.

For HP, it is a battle cry for competing with enterprise management leaders Computer Associates International, Inc. and IBM's Tivoli Systems, Inc. Last week, HP announced more tools that can be integrated with Network Node Manager (NNM), its market-leading network management platform (see story at right).

But one analyst said HP must overcome the "cry wolf" syndrome. "We've heard this two or three times before from HP," said Herb VanHook, an analyst at Meta Group, Inc. in Stamford, Conn.

Implementing OpenView still requires so much integration work — by users or HP's service organization — that strategic planners prefer the suite promises of CA and Tivoli, VanHook said.

"HP is on the right track by acquiring new tools and improving integration"

Several attendees said they favor extending their NNM expertise to more areas through OpenView as a framework.

For example, Eli Lilly started with NNM and plans to add HP's IT/Operations and IT/Administration tools to coordinate management of networks and systems. HP's NetMetrix software already monitors performance of applications throughout Eli Lilly.

But others plan to keep HP's role focused only on networks. They can link NNM to systems management tools from CA and Tivoli that handle such tasks as software distribution.

"We need to provide our help desk a high-level view of all the parts so they can triage problems users experience," said Paul Edmunds, senior network analyst at Duke Energy Co. in Charlotte, N.C.

To do that, the utility will link NNM with Microsoft Corp.'s Systems Management Server to manage desktops and Tivoli's TME 10 to manage servers.

Many IS departments "have built quite extensive management frameworks based on NNM, but it's not easy," said Charles Hebert, president of Southernview Technologies, Inc., a network management consultancy in Kennesaw, Ga.

"HP is on the right track by acquiring new tools and improving integration," Hebert said. "The bottom line these days is meeting users' service-level expectations. To do that, we need to see everything — the network, all the systems, the applications and overall performance." □

Can HP get there from here?

HP last week outlined how it will transform OpenView — best known for network management — into a modular set of tools and services for managing enterprise client/server environments.

"They're actively filling in the holes," said Waverly Deutsch, a management analyst at Forrester Research, Inc. in Cambridge, Mass. "HP will gain mind share and be a contender."

Specifically, HP announced the following steps:

- **New versions of IT/Operations and IT/Administration that integrate better with Network Node Manager, HP's network management platform. The event and systems management tools will offer new capabilities, such as monitoring of Internet servers, firewalls and hyperlinks.**
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Bay buys way into Gigabit Ethernet

HIGH-SPEED NETWORKING

By Bob Wallace

USERS SAID Bay Networks, Inc. was smart to cut a deal last week to buy Gigabit Ethernet start-up Rapid City Communications for $155 million in a stock swap.

Praising the vendor's aggressiveness, Bay customers said they are interested in Gigabit Ethernet technology long term because it provides the necessary upgrade path beyond 100M bit/sec Fast Ethernet.

There isn't a high demand for Gigabit Ethernet switching, but it is expected to increase over the next several years. For example, Dell'Oro Group, a consulting firm in Portola Valley, Calif., predicted Gigabit Ethernet switching revenue will jump from $64.7 million this year to $980 million in 2000.

"To me, it's the new management team making a statement that they're willing to step up and address the needs of their customer base," said Earl Perkins, manager of network projects at Entergy Services, Inc., a utility in Gretna, La. "Given their financial situation, it's a bit of a risk. But I think they made the move for the right reason."

Bay's stock has plummeted in the years following its creation in 1994, and the company has posted disappointing financial results in recent quarters. It also lost its original CEO, chief financial officer and other key managers.

The purchase of Mountain View, Calif.-based Rapid City could catapult Bay into the lead in the race to provide Gigabit Ethernet switches to users. Cisco Systems, Inc., 3Com Corp. and Cabletron Systems, Inc. don't yet ship those systems.

Bay executives said Rapid City's products, which include Gigabit Ethernet switches with the built-in ability to route 7 million packet/sec., will be fully manageable by Bay's Optivity element management system by the fourth quarter.

Cisco spent more than $220 million to buy Gigabit Ethernet technology vendor Granite Systems last September.

"It certainly looks like Bay will have what it takes sooner than the other major players, which will hopefully force others to take action rather than sit on the sidelines," said Edward Bianco, chief information officer at Lowell General Hospital in Lowell, Mass. "Bay buying into this technology is a shot in the arm for Gigabit Ethernet."

Analysts said they were pleased with Bay's purchase.

"Bay needed to catch up on key technologies, and Gigabit Ethernet was a big one," said Craig Johnson, an analyst at Current Analysis in Ashburn, Va. □

EDS, CA each to unveil year 2000 services plan

By Thomas Hoffman

ELECTRONIC DATA SYSTEMS Corp. will jump on the year 2000 bandwagon this week when it announces partnerships that will let it, too, offer millennium services.

The Plano, Texas, services giant will announce at the Year 2000 Conference and Expo in Chicago a partnership with Reasoning, Inc. that will let EDS market the Reasoning 2000 code analysis and remediation tool.

Another player that will round out its year 2000 strategies this week is Computer Associates International, Inc. CA will introduce CA-Fix/2000, an automated Cobol remediation tool that adds to its CA Discovery 2000 tool set.

CA intends to price CA-Fix/2000 on a per-line-of-code basis. Pricing for the tool will be made public when CA begins shipping Fix/2000 late next month, said Mark Stabler, a vice president at the software vendor in Islandia, N.Y.

Automated remediation tools such as CA-Fix/2000 are becoming increasingly critical for year 2000 project managers as resources become scarce and managers are crunched for time, said Dick Heiman, an analyst at International Data Corp., a research firm in Framingham, Mass.

Ken Goltara, an early user of CA-Fix/2000, echoed those thoughts. Goltara, director of systems development at Isuzu Motors America, Inc. in Buena Park, Calif., said he expects the tool to help his group shave 50% to 75% off the time it will spend converting its Cobol applications. □

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The Plano, Texas, services giant will announce at the Year 2000 Conference and Expo in Chicago a partnership with Reasoning, Inc. that will let EDS market the Reasoning 2000 code analysis and remediation tool.

Another player that will round out its year 2000 strategies this week is Computer Associates International, Inc. CA will introduce CA-Fix/2000, an automated Cobol remediation tool that adds to its CA Discovery 2000 tool set.

CA intends to price CA-Fix/2000 on a per-line-of-code basis. Pricing for the tool will be made public when CA begins shipping Fix/2000 late next month, said Mark Stabler, a vice president at the software vendor in Islandia, N.Y.

Automated remediation tools such as CA-Fix/2000 are becoming increasingly critical for year 2000 project managers as resources become scarce and managers are crunched for time, said Dick Heiman, an analyst at International Data Corp., a research firm in Framingham, Mass.

Ken Goltara, an early user of CA-Fix/2000, echoed those thoughts. Goltara, director of systems development at Isuzu Motors America, Inc. in Buena Park, Calif., said he expects the tool to help his group shave 50% to 75% off the time it will spend converting its Cobol applications. □

Gripe-fest held by DEC shareholders

By Jaikumar Vijayan

IT'S A WARNING shot that may yet fall short of the bow.

An unusual gathering last week of major Digital Equipment Corp. investors, who met at the invitation of shareholder activist Herbert A. Denton to discuss problems facing the company, is unlikely to force any immediate or major changes at the helm. The one concrete proposal that is likely to emerge from the shareholders, who represented about 40% of Digital's shares,. is a request for new, younger nominees to the board. Five of Digital's nine directors are older than 70.

Still, the meeting serves as the strongest indication yet of growing investor and user concern over Digital's continuing financial problems — and the consequent need for some far-reaching changes.

MORE AGGRAVATION

It is also the latest aggravation for Digital CEO Robert B. Palmer, who has been coming under more pressure recently (see story, page 4). Since Palmer's arrival in 1992, Digital's stock price has slipped by more than 12%, and it has run up accumulated losses of more than $2 billion and cut more than 50,000 jobs.

"Digital has been put on notice that investors are mad as hell and are simply not going to take things as they are right now," said Terry Shannon, editor of "Shannon Knows DEC," a newsletter in Ashland, Mass.

Ringing the bell is Denton, president of Providence Capital, Inc., a small New York brokerage, who has an admittedly minuscule stake in Digital. He called the meeting to find out whether major investors would join him in forcing Digital to revamp its board of directors and management or even to seek a merger partner. But there was little indication last week whether any of the participants were willing to join such an effort.

"I am a little worried by all that is going on, but frankly, I don't know what is going to be accomplished by changing the directors at Digital," said Joseph Pollizzi, president of the Digital Equipment Computer User Society. □

Tool helps weed out job applicants online

By Julia King

NETSTART, INC. in Reston, Va., this week will announce a new version of its client/server-based software for recruiting via the Internet.

The enhanced software promises to further shorten hiring cycles by automating even more of the behind-the-scenes administrative work involved in resume processing.

TeamBuilder 2.0 lets recruiters and hiring managers — without any programming — build World Wide Web pages to post and update job openings on a corporate web site. Postings can then be sent automatically to Web-based job sites such as Netstart's CareerBuilder site, The Monster Board and Career Mosaic

Also new are improved database search capabilities and a Java-based client that lets managers who do occasional hiring access and route resumes via a company intranet. That feature eliminates the need for TeamBuilder client software on every manager's desktop.

Multiple hiring managers can also simultaneously review a candidate's resume, which can cut days from interoffice routing times.

Pricing for TeamBuilder 2.0 begins at $7,200.

USWeb Corp., a professional services company in Santa Clara, Calif., has used TeamBuilder 1.0 to post job openings and hire much of its 500-person staff during the past year. The system has cut the time it takes to post jobs from a week to a few hours, according to Josh Goldman, director of development.

Internally, USWeb has collected about 9,000 resumes in the system's database, which is automatically searched when openings come up.

Companies can also use the system to measure recruiting performance by tracking the number of responses to job postings on different sites. □

Fast facts about Internet recruiting

79%	of companies used the Internet for recruiting in the past year
61%	of human resource managers post openings on a Web job site
14%	post openings on a company Web page
68%	of companies that recruit via the Internet accept resumes via E-mail

Base: 600 human resource professionals at U.S. companies

Source: JWT Specialized Communications, Los Angeles

New spring in Mac managers' step

By Lisa Picarille
SANTA CLARA, CALIF.

AT LAST WEEK'S Mactivity conference, Macintosh managers acknowledged feeling more upbeat about the future of Apple Computer, Inc. based on products released over the past several months and the promise of future technologies.

In recent months, Apple has delivered more reliable products; refreshed its languishing notebook line; simplified its product lineup, using more industry-standard components in fewer computer models; and articulated a clear operating system strategy.

Still, Apple is like the boyfriend who broke your forgiving daughter's heart.

TOUGH PARENTS

Loyal Macintosh users, like teenagers in love, might be quicker to forgive missteps, but corporate executives, like parents, want evidence that promises are being kept. Specifically, users want to see Apple's next-generation operating system, Rhapsody, arrive on time next summer. And decision-makers want proof that the company's financials are in order.

John Oakley, Macintosh systems administrator at Qualcomm, Inc., said the San Diego telecommunications firm is in a holding pattern waiting for Rhapsody. An all-Macintosh shop three years ago, Qualcomm now has about 5,000 PCs that run Windows 95 and Windows NT and 3,000 Macintoshes. But Oakley said the trend could be reversed.

"It's all in Apple's hands now," he said. "If Rhapsody is really good and on time, there is a strong chance some of the users who moved to Windows will switch back, because we have no policy dictating which platform people have to use."

For corporate executives and the bosses of Macintosh information systems managers, the financials are still an issue. Apple posted a $704 million loss in its most recent quarter, and analysts expect the company next month to log a quarterly loss of about $50 million.

Observers said Apple's financial woes often get the attention of nontechnical executives, who pressure IS managers to move away from the company.

But Apple's core customers, such as multimedia, publishing and Internet content creators,. said they remain committed to the platform because of the technology, regardless of perception.

"For online publishing the Mac is the only choice, regardless of what the PC weenies are saying," said Steven Noreyko, webmaster at *The Star* and *The News* newspapers in Indianapolis. □

Sun to link banks via Java

CONTINUED FROM PAGE 1

ence," said George Kivel, a technology analyst at The Tower Group, a financial services technology consultancy in Newton, Mass.

The architecture relies on Sun's Java technology and open application programming interfaces (API) to connect legacy systems that support various customer delivery channels, including automated teller machines (ATM), call centers and PC/Web-based stock-trading systems. Sun Connect supports multiple messaging standards, such as Microsoft Corp.'s Open Financial Exchange and Integrion Corp.'s Gold standard.

A brokerage that builds a Web-based trading application, for example, can use Sun Connect to deploy the applications across all its Web-enabled delivery channels, including PCs, kiosks, network computers and personal digital assistants.

"I think there would be interest in this on Wall Street, given the direction we're heading in connecting with our customers over the Internet," said Bruce J. Mellusi, senior vice president of information systems and telecommunication services at Prudential Securities, Inc. in New York.

JAVA MIDDLEWARE

Prudential currently offers its investors online access to end-of-day stock prices and morning updates on their investment positions. Sun Connect could play a role in supporting additional features that Prudential plans to add to its Web site. Mellusi declined to discuss those features.

Sun Connect might be a tougher sell to conservative bankers. Sun "is going to have to prove to the industry that [Sun Connect] products are reliable," said Abraham L. Nader, a senior vice president at Dollar Bank in Pittsburgh. At institutions such as Dollar Bank, the security and reliability of ATMs and call centers "are extremely important, and we tend to be conservative about products that aren't established," Nader said.

Sun Connect uses existing Sun hardware, software and APIs, including its Simple Key Internet Protocol client-to-server encryption technology. Mountain View, Calif.-based Sun plans to demonstrate Sun Connect at the SIA show, where it will showcase how San Francisco-based Discover Brokerage Direct applied the technology, said Jim Bressler, global marketing manager of banking at Sun in Menlo Park, Calif.

Bressler said Sun intends Sun Connect to help banks and brokerages improve customer services by tightening integration among their delivery channels.

The Sun Connect architecture is free, although pricing for individual products will be dictated by independent software vendors working with Sun customers, Bressler said.

For example, BEA Systems, Inc. in Sunnyvale, Calif., plans to use Sun Connect to help BEA's Tuxedo transaction-processing middleware connect back-office systems with online trading systems and other Web-based applications. □

Seagate seeks to ease NetWare recovery

By Matt Hamblen

SEAGATE SOFTWARE in Orlando, Fla., this week will announce Intelligent Disaster Recovery, a software package that users said cuts hours from the chore of disaster recovery for NetWare LANs.

Ken Lowrie, vice president of HiTec-Soft Corp. in Scottsdale, Ariz., tested the product by deleting NetWare and DOS partitions on a server and rebooting with Intelligent Disaster Recovery. It took 20 minutes to get the server ready for a full restore, something that normally takes about two hours, he said.

The Seagate product can work in pure Novell, Inc. NetWare LANs or LANs with both NetWare and Microsoft Corp.'s Windows NT platforms, according to analysts and Seagate officials.

The recovery software rebuilds DOS partitions and restores other features of the LAN after a network crash or shutdown.

It can provide recovery for all the servers in a multiserver network, even those servers that aren't attached to a backup tape drive.

> **"NetWare 4 is a challenge for disaster recovery. It has always been a real pain . . . because you might end up reinstalling old software."**
>
> **– Ken Lowrie,**
> **HiTecSoft Corp.**

Seagate's chief rival is Cheyenne Software, a division of Computer Associates International, Inc. in Islandia, N.Y., which makes ARCserve for NetWare and ARCserve for Windows NT.

The Cheyenne products require the purchase of a client agent to work in a mixed NetWare/Windows NT LAN, Cheyenne officials and analysts said.

DAILY BACKUP NEEDED

Intelligent Disaster Recovery requires the use of Backup Exec, Seagate's daily backup software.

When Intelligent Disaster Recovery runs, it restores DOS partitions in minutes, which can save hours, according to Lowrie and another tester, who plan to keep using it.

"NetWare 4 is a challenge for disaster recovery. It's always been a real pain, because you might lose your local ID database or passwords and end up reinstalling old software," Lowrie said.

Alex Molnar, a network engineer at Personal Systems Plus, Inc. in Cleveland, said he envisions using the Seagate product to restore the LAN after hardware upgrades. Using it would cut the six-hour chore in half, he said.

Intelligent Disaster Recovery will cost $495, plus $495 for a single-server version of the required Backup Exec for NetWare. That compares with Cheyenne's starting price of $445, which doesn't include the $495 client agent needed for cross-platform networks.

Paul Mason, a storage analyst at International Data Corp. in Framingham, Mass., said disaster recovery is more important than people realize, even in a PC network.

Finding ways to make the process easier is important, because the average PC LAN shop hasn't developed a good process, Mason said.

"They haven't really thought it through, and they back up everyday without checking to see if they can recall what's backed up. And usually there's a local domain expert doing it who's not terribly well-trained in disaster recovery," Mason said. □

& Design business equips users with removable Jaz drives. Page 67

you
your server

IBM charts storage course with Seascape

By Tim Ouellette

BY NEXT YEAR, users of IBM's disk and tape storage devices may have more flexibility in how they add features to their systems.

IBM last week unveiled its Seascape storage architecture, which was designed to let users run existing IBM storage products while quickly bolting new software features and functions onto the IBM disk or tape subsystem.

Doing so will pull most of the storage-related data manipulation and movement, which now clogs enterprise networks, into the storage device.

"If you need to get data a lot closer to the users and if your users are on different platforms, you need a flexible architecture," said John McArthur, an analyst at International Data Corp. in Framingham, Mass. "With Seascape, users can now focus on function instead of hardware."

Although most of the Seascape building blocks — including backup software, SSA 7133 disk drives and Magstar tape systems — are in use today (see chart), Seascape won't be truly realized until major new products see the light of day by year's end. And mainframe-based Escon controllers for Seascape won't be available until next year, sources said.

Several users interviewed by *Computerworld* said they were familiar and supportive of the individual IBM products but were unsure of how they would approach knitting them together.

A SEA OF CHANGE

IBM's Seascape storage strategy adds storage software functions to these building-block products:

- **Adstar Distributed Storage Manager software**
- **SSA 7133 disk arrays**
- **Magstar tape drives**
- **RS/6000 RISC processors**
- **IBM serial adapters**

Specific Seascape deliverables in the next year include the following:

- Mainframe disk array support for Unix and Windows NT data.
- 7133 disk arrays that can store Unix, AS/400 and Windows NT simultaneously.
- A global storage resource-management tool.

One Seascape product already on the streets is the Virtual Tape Server (VTS), which bundles a front-end disk array, back-end tape drives and backup software to more efficiently archive data and recover it quickly [CW, June 2].

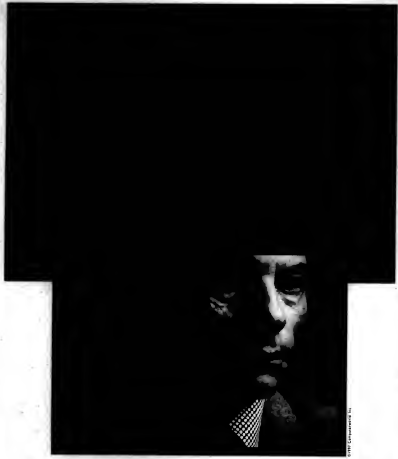
"It is something we wanted for a long time, which vendors could never provide before," said Richard Adams, vice president of technical systems at United Services Automobile Association in San Antonio.

"VTS lets us put more than one data set on a single cartridge, which cuts down on tape mounts and is very cost-effective," Adams said.

IBM's effort is an attempt to keep pace with storage rival EMC Corp. in Hopkinton, Mass. EMC has added a number of software tools and data sharing features to its Symmetrix disk arrays in the past two years.

The silver bullet in IBM's plan is its use of PowerPC RISC processors, already found in RS/6000s and AS/400s, as storage controllers. This makes them less expensive and more readily available than custom-made controllers, McArthur said.

Support for Unix on top of the RISC processor lets users quickly port common storage management tools onto Seascape products, IBM officials said. ◻



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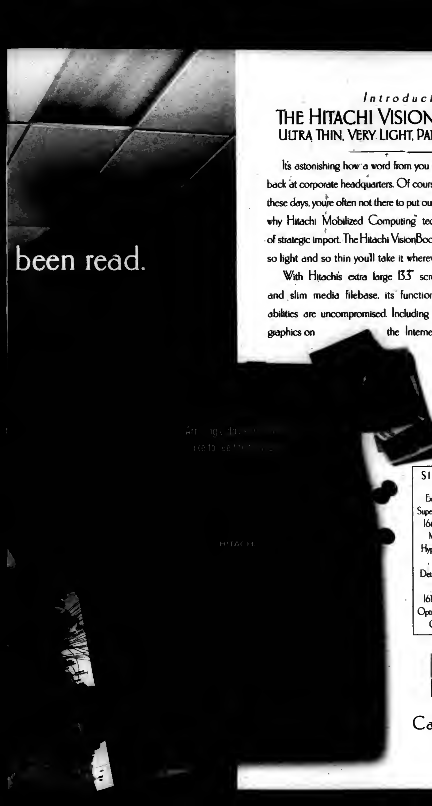

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CW 0616

Texas applies brakes to online license data

By Sharon Machlis

SHOCKED BY A World Wide Web site that offers driver's license data on millions of residents, the Texas Legislature is trying to block any such future postings on the Internet.

The site, *www.publiclink.com*, offers a database that can be searched for names and license-plate numbers and can display all licensed drivers at an address or ZIP code.

Texas lawmakers this month approved a bill that requires a pledge from anyone seeking motor-vehicle records from the state that they won't post the data on the Internet unless they have the subjects' permission

Supporters said it is the only way to maintain people's privacy and safety. But critics said the issue should be which records to make public, not to attack one type of media

"Barring information being on the Internet per se, I think, is the wrong policy," said Gerry Berman, executive director of the Center for Democracy and Technology in Washington. "We want to protect privacy on the Internet, but we also want the Internet to be accessible and not be discriminated against in terms of media and commerce."

Democratic Rep. Ruth Jones McClendon filed the bill after a complaint by a woman who had moved to Texas to escape an abusive ex-husband and was frightened that her new address was easily available. The bill was awaiting action by Gov. George W. Bush.

"Barring information being on the Internet per se, I think, is the wrong policy."

– Gerry Berman, Center for Democracy and Technology

Lauren Weinstein, who moderates an Internet privacy forum, blasted the site. "No need for the sickie who harasses young women to follow his next lovely target all the way home," he wrote. "And that guy you accidentally cut off on the freeway? He may not have bothered you at the time, but he can come by to 'visit' you later, perhaps in the middle of the night while you're sleeping. Use your imagination for more interesting scenarios."

Officials at Public Link Corp., which runs the site in Dallas, couldn't be reached for comment.

Ron Plesser, an attorney at Piper & Marbury LLP in Washington who represents the Lexis-Nexis database firm, said governments must "decide whether or not a record should be publicly available. . . . It's bizarre to say I can fax it to you but I can't put it on the Internet."

The Texas woman who complained about the site had paid extra money to the state so her address wouldn't be published on any paper versions of license data released to the public. But the correct address nevertheless was included in computer tapes sold by the state.

Plesser said the problem wasn't the Internet but the state, which failed to correctly follow "opt-out" procedures. "It's a cop-out response to some current headlines," he said of the bill. □

When will her education be as technologically advanced as her toys?

CIO
THE MAGAZINE FOR INFORMATION EXECUTIVES

ion.
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After all, without the
collect precious data
a computer would
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isler

Not too long ago, companies
stored their data the way they stored
their hard goods—in out-of-the-way
warehouses where the real estate
was the cheapest. But enterprises of
all types are becoming increasingly
aware that accessible, centrally lo-
cated data warehouses are crucial
cogs in the business machine. "Stor-
age is becoming much more strate-
gic as a component in the IT envi-
ronment," says R lbs, direct

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Data warehouses are becoming strategically vital to a business's success. But the truth is, many are outgrown right after they're delivered. They're simply overwhelmed by ever-increasing amounts of data. Unless you have EMC Enterprise Storage.™ It's the only solution that keeps mission-critical information available, protected and timely, even in the face of explosive growth. And it's the only way to refresh data from multiple sources without sacrificing performance. To find out how a data warehouse with EMC Enterprise Storage can help you instantly respond to the ever-changing needs of your business, call 1-800-424-EMC2, ext. 124, and we'll send you an interactive CD-ROM. Or visit us at www.emc.com.

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ANYTIME TWO COMPANIES LIKE

COMPAQ AND MICROSOFT

get together

YOU CAN EXPECT A LONG LIST OF

IMPRESSIVE RESULTS.

Dazel output manager makes diverse data delivery for IS

By Patrick Dryden

INFORMATION SYSTEMS managers may be able to meet users' diverse data delivery needs without busting their budget to hire Unix gurus and webmasters.

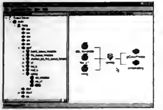
Dazel Corp. next month will offer a version of its unique output manager that runs on Windows NT Server — not just Unix systems. And now, this transparent data juggler — which captures print jobs and reroutes them to fax machines, electronic mail, pagers or specified printers — also will publish output to a companion World Wide Web server for browser access.

"NT support means we can add more servers, and the Web destination should expedite delivery to internal groups and external customers," said Dazel user Kelly Sjelin, a report management analyst at Carlson Cos. in Minneapolis.

Several departments in the travel and hospitality corporation are pursuing their own Web delivery projects, Sjelin said, "but now, Dazel's servers could be the way to unify us all."

Upgrading to Version 3.0 of the Dazel Output Server and adding the MetaWeb server would cost less than developing Web publishing applications in-house, said Clarke Knorr, manager of global systems deployment planning at Nortel, Inc.'s IS department in Toronto.

About 4,000 users at Nortel manufacturing sites worldwide rely on Dazel's system to select the proper printer for hard copies of a design they select from a central server library.



Administrators define one destination for a group, then the Dazel server translates output for delivery

Other groups seek a similar way to distribute reports internally and externally and to standardize Web server efforts on off-the-shelf products.

If they put those efforts on the MetaWeb server, "we wouldn't have to develop applications to do the translation and push the information out," Knorr said.

Here is how it works. First, an administrator defines delivery methods for members of one group, such as the sales department. Then anyone can direct a sales report to that group.

MULTIPLE TARGETS

The Dazel Output Server translates print-stream data from a mainframe or server source for each form of delivery. It prints the report on printers throughout the network, transmits it to some members via fax, E-mail or pager and posts it to individual in-boxes on the MetaWeb server.

MetaWeb notifies those users that the new report is available.

"Nobody has a competitive product for complex document distribution," said Grey Held, associate editor of *Hard Copy Observer*, a print industry journal published by Lyra Research, Inc. in Newtonville, Mass. Despite the new Web option, Dazel's software will remain "a base-level back-end processing tool for IS shops" because its strength lies in managing print queues, said Bobby Cameron, a senior analyst at Forrester Research, Inc. in Cambridge, Mass. □

Mobile users help laptop sales

By Patrick Thibodeau and Wylie Wong

THERE ARE NO dead ends in sight for mobile computing revenue, which is expected to soar in the next few years, according to a new study by market research firm Frost & Sullivan, Inc.

That is also the case in the notebook market, where traditional desktop powerhouses are fighting for the top market spot.

Revenue in the mobile computing market totaled $27.2 billion in 1995 and grew 35.3% to $33.5 billion last year. The mobile computing market, which includes portable computers, pen computers, palmtops and peripheral products, is expected to hit $99.9 billion in revenue by 2003.

"It's a much more mobile society," said Michael J. Palma, an analyst at Mountain View, Calif.-based Frost & Sullivan who worked on the report. "You have a lot more people either working from home [or] working at customer sites."

FIERCE COMPETITION

Revenue growth also has been spurred by advances in technology, including longer battery life and improved screens, storage capacity and processing power.

The mobile computing industry is characterized by fierce competition, component shortages and ever-shorter product cycles, according to Frost & Sullivan.

In the equally competitive notebook market, Toshiba America Information Systems, Inc. is still first in the U.S., but Compaq Computer Corp. is a close second, another new study shows.

Toshiba has 33.8% of the market, Compaq has 25.6% and IBM has 20.8%, according to Computer Intelligence InfoCorp in Santa Clara, Calif.

Meanwhile, Xircom, Inc. is among the vendors trying to keep all those mobile devices connected. The company is offering a 56K bit/sec. modem PC Card through an upgrade program. Participants can trade in any modem or combination PC Card — a card that connects to either a LAN or modem — for a CreditCard Modem 56, which will be released this summer.

The program includes a free flash upgrade to the final 56K bit/sec. standard. Upgrade prices range from $99 to $249 for 20 units, depending on modem configuration. Uers can register for the upgrade at the company's World Wide Web site (*www.xircom.com*) until July 31. □

Compaq tailgates HP

▸ *Analysts say workstation users will benefit*

By Wylie Wong

JUST EIGHT months after plunging into the personal workstation market, Compaq Computer Corp. is challenging Hewlett-Packard Co. for market leadership.

"They're neck and neck," said Keren Seymour, an analyst at International Data Corp. (IDC) in Framingham, Mass. "They [are] competing on price [and] performance, and that's good news for anyone who wants to buy a workstation."

According to a recent IDC study, Palo Alto, Calif.-based HP ranked first with 96,000 personal workstations sold last year. Compaq, in Houston, was second with 92,300 units sold. Ranked third and fourth, respectively, were Digital Equipment Corp. in Maynard, Mass., and Intergraph Corp. in Huntsville, Ala.

Dataquest's 1997 first-quarter figures were similar: Of the 61,000 personal workstations with Windows NT shipped, HP ranked first with 37.3%; Compaq placed second with 29%; Digital ranked third with 14.4%; and Intergraph was fourth with 12.4%.

So how did Compaq catapult itself so close to the top so quickly? Compaq is offering products and prices that are comparable to HP, analysts said.

"It's a phenomenal achievement," said Peter ffoulkes, an analyst at Dataquest in San Jose, Calif. "They've taken the trouble to put the necessary investment in place, have a good business plan and execute it. They've built a good product, formed the right relationships with vendors and recruited the right class of resellers. It helps that they're well-established and sell to corporate markets."

IT'S IN THE NUMBERS

Compaq's first personal workstation — the Professional Workstation 5000 with Windows NT and a Pentium Pro processor — sold 12,300 units last year, Seymour said. The remaining 80,000 "workstations" sold actually were Compaq's high-end PCs, the Compaq Deskpro 4000 and 6000, she said. HP shipped 96,000 Vectra workstations.

IDC's figures include estimates of high-end PCs that are used as workstations. High-end PCs counted as personal workstations run Windows NT and have a 200-MHz Pentium Pro processor and high-end Matrox Graphics, Inc. graphics, Seymour said. Dataquest, on the other hand, counts only machines that are marketed as workstations.

In all, 825,000 personal workstations were sold last year, according to the IDC report. Other PC vendors were included in the overall total, but their individual statistics weren't included in the study because they didn't have workstation marketing strategies at the time, Seymour said.

> **"Compaq has taken the second step, another step ahead of other Wintel [workstations]."**
>
> **– Peter ffoulkes**
> **Dataquest**

Analysts expect that IBM will be a serious contender in the personal workstation market soon, possibly ranking in the top five. IBM only in March began to sell personal workstations with Windows NT, called Intellistations.

HP and Compaq will continue to duke it out for the personal workstation market lead this year, with no clear winner emerging, analysts said.

Compaq last week announced two new models and a deal with software vendors that plan to optimize their applications for the workstations. The new Workstation 8000 can hold up to 3G bytes of RAM.

Previous professional workstations competed with low-end "traditional" workstations with Unix, ffoulkes said.

But the Workstation 8000 allows Compaq to compete with traditional midrange Unix machines, he said.

"Compaq has taken the second step, another step ahead of other Wintel [workstations]," ffoulkes said.

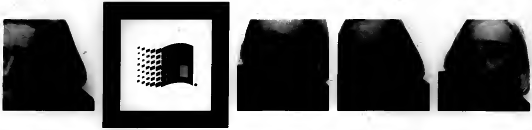
Analysts expect HP eventually to respond with its own product announcements.

Sun Microsystems, Inc., which sells "traditional" workstations that use Unix, remains the leader in the overall workstation market, Seymour said. □

CONVERGE,

COMPUTER ASSOCIATES

TANDEM



Marengi has his eye on a full-service Dell

▸ *Vendor targets major corporate customers*

By Laura DiDio and April Jacobs

WHEN JOE MARENGI joins Dell Computer Corp. next month to help jump-start its business with major corporate accounts, he'll have his work cut out for him.

Marengi, who resigned as Novell, Inc. president and chief operating officer June 6, will join Dell as senior vice president of the company's relationship group. Insiders are hoping Marengi will help the Round Rock, Texas-based PC vendor boost efforts to woo corporate customers, particularly as it attempts to expand its horizons into a full-service company to compete with service and support giants such as IBM and Hewlett-Packard Co.

"I'm looking forward to it," Marengi said from his home in California. "Dell has a great sales organization in place. Now it's a question of expanding the existing worldwide sales and field activities and major accounts' licensing programs."

As senior vice president of Dell's relationship group, Marengi will oversee the company's global enterprise program, which provides large customers with a single point of contact. He will also head the corporate accounts group and the mid-size-business group.

Marengi arrives on the scene as Dell faces the challenge of remaking itself into a full-service vendor.

The company recently announced an enhanced Internet-based service and sales program, called Premiere Pages, that provides customers with customized World Wide Web pages that track hardware and preconfigured software purchases. It also intends to offer customers leasing programs. □

Top challenges that Joe Marengi faces at Dell:

- **Beef up the service and support organization**
- **Boost sales to corporate customers to catch up to rivals Compaq and IBM**
- **Promote the new Premiere Pagers Internet-based service and sales program**

Calif. seeks to bar new 'net taxes

By Patrick Thibodeau and Mitch Wagner

CALIFORNIA lawmakers have launched a pre-emptive strike designed to protect Internet service providers from the tax man.

Legislators introduced a bill this month to bar the state's taxing districts from imposing special taxes on Internet commerce and Internet connectivity.

The proposed California legislation is modeled after the federal Internet Tax Freedom Act, pending in Congress. That bill would set a two-year moratorium on Internet taxes.

The federal and California bills don't declare the Internet a tax-free zone. Goods, services and information sold over the Internet would still be subject to normal sales and other taxes. What is forbidden is the imposition of additional taxes on transactions just because they take place on the 'net. Also forbidden are special taxes on Internet connectivity.

"It can be very complicated for the young entrepreneurial companies that are just in their infancy to be responsible for collecting taxes and paying taxes in multiple jurisdictions," said Bob Hines, an aide to state Assemblyman Jim Cunneen (R-Cupertino), who co-sponsored the California legislation. That bill is also sponsored by Assemblyman Ted Lempert (D-Redwood City).

The proposed legislation comes as governments increasingly look to the Internet as a source of revenue. Tennessee levies taxes on Internet services, and Texas, Massachusetts and New York have laws taxing "the sale of electronic services" [CW, Oct. 21; June 16].

ELECTRONIC COMMERCE

GROWTH INHIBITOR?

John Nylander, director of information services at men's clothier International Male in San Diego, welcomed the Internet tax protections. "Taxes would pose an impediment to growth of the Internet," Nylander said. International Male is a unit of Hanover Direct, Inc., a catalog company.

But the Internet tax shields aren't universally popular. Dwight Stenbakken, legislative director of the League of California Cities in Sacramento, a state government lobby group, said the proposed laws provide a special protection for a single industry at a time when all governments need to look at new sources of revenue.

The chief source of local government revenue are taxes on hard goods. And sales of hard goods have been flat recently, while other sectors of the economy have been growing, Stenbakken said. For new revenue, governments need to be able to tax intangibles and services, including the Internet, he said. □

Informix struggles as Oracle basks in profits

▸ *CEO White seeks new marketing strategy*

By Craig Stedman

CALL IT A tale of two database vendors.

While Oracle Corp. basked in the glow of a 35% increase in fiscal fourth-quarter profits, rival Informix Software, Inc. last week was busy trying to find a break in the clouds.

Informix CEO Phil White tried to convince skeptical financial analysts that the company is on the road to recovery following its stunning $140 million first-quarter loss [CW, May 5].

SKEPTICS REACT

But some of the analysts who listened to White's pitch in New York remained unconvinced, despite his promises of a 10% workforce reduction and several other moves aimed at cutting costs and boosting sales (see chart).

Oracle and Informix are "as different as day and night, particularly in terms of execution," said James Moore, an analyst at Alex. Brown & Sons, Inc. in Baltimore. "The execution at Oracle is brilliant, especially at the field level, and the execution at Informix is at the other end of the continuum."

Thanks to a 78% jump in sales of packaged applications, Oracle's $360 million fourth-quarter profit met Wall Street expectations even though database sales were below analysts' forecasts, Moore said. By contrast, much of what White had to say "sounded fishy," he said.

Melissa Eisenstat, an analyst at Oppenheimer & Co. in New York, agreed that key parts of Informix's recovery plan "just don't seem to hold water." For example, in the data warehousing and Windows NT markets, Informix is "really late to the game," Eisenstat said.

Informix officials said White reiterated earlier comments that he hopes the Menlo Park, Calif., company will be profitable or at least break even by this year's fourth quarter. To achieve that goal, Informix is reinvigorating the marketing of its mainstay OnLine relational databases and trying to increase its profile in fast-growing areas such as data warehousing and NT servers.

LOYAL FOLLOWING

Most installed-base users appear to be sticking by Informix. Micki Thomas, director of systems development at Pepsico, Inc.'s KFC unit, said the financial problems haven't shaken the Louisville, Ky., restaurant chain's faith in Informix and its software, which KFC uses to warehouse and analyze sales data for strategic planning and marketing purposes.

But for new database buyers such as Papa John's International, Inc., Oracle's stability and clout are strong magnets. "There are a lot of things that we can lose sleep over in this business, but Oracle going out of business isn't something we have to worry about," said Kirk Hay, director of enterprise systems at Papa John's, which is also based in Louisville. The pizza delivery chain chose Oracle as its strategic database in May. □

INFORMIX'S ACTION PLAN

- Cut staff of 4,600 by 10% at end of first quarter
- Reduce expenses to third-quarter 1996 levels
- Arrange new financing in case cash runs short
- Give incentives to sales force to close deals during first two months of a quarter
- Strengthen marketing and benchmarking of OnLine relational databases

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OPINION

Mentor this! Like many of the women involved in the high-tech field,

I read the stories coming out of the recent Women in Technology International (WITI) conference with avid interest. But I found myself wincing every time I saw that cliched advice to "find a mentor" to ensure success. And my eyes were definitely glazing over whenever that accursed glass ceiling got hauled out for yet another round of lamenting.

To me, these '80s-era concepts carry a heavy load of defeatist psychobabble. They perpetuate an image of women as more needy in the workplace than men and dependent on special help, as though we were visitors from another planet who couldn't quite translate the native language without a guide.

Well, let me venture into the wilds of political incorrectness and suggest that we just say no to the quest to find a mentor. Instead, find *several* people, team up with them and learn s whole lot more. Develop leadership qualities by showing what you can do, not by following someone else's lead.

The '90s litmus test of good managers should be how well they mentor their entire staff.

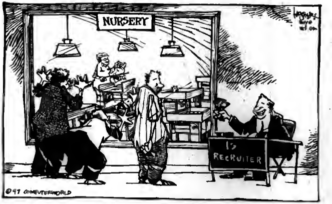
Women in IS should be applying their energies to extending their personal networks of contacts and by going after the tough, high-profile projects to show their capabilities. A lot of the news coverage out of the WITI conference focused on women bonding over shared experiences and venting about dealing with male executives. I hope that behind the scenes these women were getting their money's worth by making useful contacts and swapping business strategies.

When WITI polled 500 female IS professionals and asked if — given a background and capabilities equal to other candidates — they believed they had an equal opportunity to be a CEO, nearly one-third of them said "yes."

Frankly, I'm rooting for that bunch rather then the 51% who said "no" or the 20% who ducked the question entirely. With that kind of attitude, they're going to need more than a mentor.

Maryfran Johnson

Maryfran Johnson, *Executive editor*
Internet: *maryfran_johnson@cw.com*



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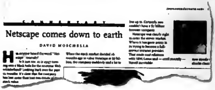
LETTERS



COMMENTARY

Netscape comes down to earth

DAVID MOSCHELLA

Microsoft doesn't permit competition to exist for very long

THE COMMENTARY by David Moschella on what Netscape needs to do to stay in the running ["Netscape comes down to earth," CW, April 21] suggests getting the government to stop Microsoft from dumping Explorer.

Some years ago, the Japanese were accused of dumping their cheap chips on the U.S.

Now, Microsoft is dumping Explorer in the U.S. deliberately to put Netscape out of business.

This is unethical and criminal, and yet nothing is being done about it.

Netscape may have had a monopoly on the browser market, but it didn't stop companies from developing plug-ins to enhance it.

We need to stop Microsoft because it permits no competition to exist for very long.

And that is no hypothetical guess, crystal-ball gazing on my part. It's in the news every week.

Colin J. Schmidt
EDI coordinator
Snappy Car Rental
Bixby, Okla.

It doesn't have to be all or nothing with push technology

IN YOUR April 28 article, "Intranet advocates: Don't 'push' users; let 'em browse," I found it perplexing that the advocates and opponents of intranet push quoted in this article took an all-or-nothing approach.

Those in favor of using push technologies said it helped focus on relevant information.

Those opposed said it limited access to information that can be uncovered while pulling. Why can't organizations have it both ways?

Subscribing to push channels allows employees to make sure they don't miss important new information, while organizations can be certain employees will see important announcements and news they may not voluntarily pull.

Push channels do not need to be draconian or limiting and should by no means limit employees' ability to use the Web.

Intranet managers need to employ sound organizational communications techniques to strike the right balance.

Shel Holtz
Holtz Communication
& Technology
Concord, Calif.
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Forced march to Office 97

COMPUTERWORLD totally missed the single greatest reason for such a large number of upgrades and purchases of Office 97 ["Users shrug off Office 97 fears, migrate in droves," CW, April 28]: Microsoft will not sell or site license Office 95.

My company wants nothing to do with Office 97, but we are stuck with it on all new PC purchases, and we can't buy additional Office 95 licenses to replace them. We do not use all the new features and find it very unstable.

No choice puts us at odds with Microsoft.

The lack of backward compatibility is also a major problem for us.

We also use Lotus Notes and do not need the collaboration features mentioned in the article. For us, there is absolutely no benefit or desire to use Office 97.

We simply are not given any choice, and that puts us at odds with Microsoft.

Scott Sawdy
Farmington Hills, Mich.
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Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

STRAIGHT TALK

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- 23 Dir./Mgr Sys. Development, System Architecture
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- 41 Engineering, Scientific, R&D, Tech. Management
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- (b) Netware (f) Windows NT
- (c) OS/2 (g) Windows
- (d) Unix (h) NeXTstep

App. Development Products ☐ Yes ☐ No
Networking Products ☐ Yes ☐ No
Internet Products ☐ Yes ☐ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)
- (a) ☐ Internet software
- (b) ☐ Internet browsers
- (c) ☐ Web authoring/development tools

5. Do you use the Internet? ☐ Yes ☐ No

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TIMELY NEWS

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- 65. Communications Systems/Public Utilities/Transportation
- 70. Mining/Construction/Petroleum/Refining/Agriculture
- 80. Manufacturer of Computers, Computer-Related Systems or Peripherals
- 85. Systems Integrators, VARs, Computer Service Bureaus, Software Planning & Consulting Services
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Give junk E-mail an express lane to garbage heap

Sharon Machlis

Caller ID, Day 1. I'm near giddy with power as I wait for the phone to ring — no, *dare* it to ring — as it usually does each night at dinnertime.

The first test. A landscaping company's name flashes on my ID box. Ha-ha! I don't even have to tell them, "Thanks, I'm not interested." I just let it ring.

Why can't it be that painless to screen out junk E-mail?

As it turns out, things are more complicated, even with the lowly telephone (life is like that). First problem: telemarketers often call from technologically challenged areas, where Caller ID is unavailable. Because calls from my overseas friends also show up as "unavailable," I can't safely blow off all those calls.

We need technology that is stronger than simply checking headers to deal with burgeoning E-mail.

And although I vowed to ignore all callers who shut off their ID information, it turns out several of my privacy-conscious colleagues have blocks on their lines all the time. (Here in Massachusetts, anyone can request that their line be blocked, and it's free.)

I've ended up with a bunch of informal, internal rules, based on what calls I might be expecting that day, what time it is, and so on. And that's just for a dozen or so calls each day. Still, having some power to screen out annoying calls is better than having none at all.

So what about that burgeoning mound of E-mail?

It's time for some technology to help us cope. And I mean something a lot stronger than simply checking "From" and "Subject" headers — the equivalent of looking at my Caller ID box. Because what works reasonably well 10 or 15 times per day can get awfully tedious after a hundred. And like much of white-collar America, I'm inundated by the Internet.

DEFENSE OPTIONS

To deal with spammers — junk-mailers who disguise their identities and then send out mass-mail sales pitches, chain letters and the like — I want smart software that verifies all return addresses to make sure they work. No operational return E-mail address? *Send to trash* before I ever see it.

I'd also like an optional infrastructure for business users so we can ensure that E-mail does indeed come from the address it says it does. This verification wouldn't be required everywhere on the Internet but could be done transparently for any user who wanted it.

For other useless mail, how about some artificial intelligence that summarizes a message and runs it against some rules?

My Lotus Notes mail at work and my Unix mail at home will let me develop an agent, or set of rules, that looks for key words and then tosses an offending message in the trash. But if I deep-six any message that says "sex" to get rid of cyberporn, I could miss someone sending me a work-related survey asking about my gender. And if I screen out mail with "work at home" and "money" to target get-rich-quick schemes coming my way, I could miss out on some useful telecommuting information.

If a computer can play championship chess, it's about time to tell the difference between a story pitch and a pitch to earn $1,000 per week in my spare time.

I don't need a machine that can go head-to-head with Garry Kasparov. But one that can match wits with spam merchant Cyber Promotions — now there's a system that would sell. □

Sharon Machlis is Computerworld*'s senior writer, security and government. Her Internet address is sharon_machlis@cw.com.*

Thanks to year 2000, *someone's* making big bucks

Michael Cohn

By now, it's no secret: Year 2000 is big and ugly. After tackling it for several years, what we've finally come up with is: It's *really* big and *really* ugly. Folks, it's time to face the music. Some shops are making progress. Some are making excuses. But some folks out there are making money — lots of it.

Thanks to year 2000, we're all going to be working 70 hours per week — repairing, replacing, testing and complaining. But while some of us work our fingers to the bone, others will be working their way to their next Mercedes.

Someone is making a killing, thanks to year 2000. And if it isn't me, and it isn't you . . . who's making all the money?

THE HEADHUNTERS

As if they weren't making enough already. But with year 2000, these people will surely start pulling down six figures — every month. That's because everyone will need people. Testers. Coders. Project managers. Even $200,000-per-year CIO positions will be up for grabs after they've been vacated by executives who a) can't take the pressure, b) don't want the blame or c) left to become headhunters.

THE DINOSAURS

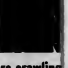
At last. Those crazy Cobol guys — who were forever ridiculed, tormented and made to share cubicles — are back, and they're in demand. And not just for Cobol, but a whole bunch of lesser-known languages, such as Unibol, Generol and Tylenol. We don't make these programmers anymore; they can ask $100 per hour. Do you know what an assembler programmer can fetch these days? Especially because statistics show that nearly half the people with three decades of assembler experience are dead . . . although that may not keep a headhunter from trying to wheel them to a terminal.

THE LAWYERS

You know things are really screwed up when there aren't enough lawyers. But by 2000, suing will be the national pastime, with everyone testifying about how their system blew up, required millions to keep it from blowing up or required millions and then blew up anyway. The litigation could be in the trillions, but that's unlikely, because odds are the courts' computer systems will blow up.

YEAR 2000 PROVIDERS

Tool providers. Test providers. Offshore providers. The demand for manpower, MIPS and gigs will be the most significant market in the 20th century, next to the Beanie Baby. Of course, because everyone knows this, suddenly everyone is a year 2000 provider. Tool vendors are crawling out of the woodwork. Everyone's cashing in. "We offer same-day muffler and brake service — ask us about our year 2000 online playback testing."



Tool vendors are crawling out of the woodwork. Everyone's cashing in.

SOFTWARE VENDORS

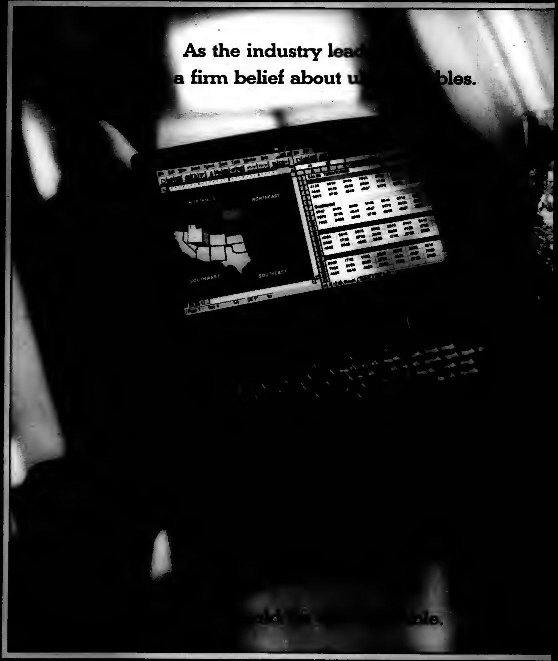
"Year 2000 doesn't affect us. ... We're replacing everything." Until you hit 1998, when *everybody's* replacing everything. Software companies will be tapped out — and loving it. These people will be getting phone calls out the wazoo. They will be turning away business, sending it to smaller, less-qualified vendors that will really rake it in. So get your vendor early, before you settle for No. 14 on your list — whose slogan is, "We've been awarded dozens of implementation contracts and someday hope to finish one."

MANUFACTURERS

Folks who make automated teller machines, cash registers, time clocks. Everyday devices, some of which can't print "00." They're going to get orders for millions of new, year 2000-compliant products. There will be back orders for digital cellular phones and two-year waits for fax machines.

Just imagine if the post office suddenly realized it was dead in the water without 20,000 new rubber stamps? Rubber stamp makers would make a killing . . . if they could figure out how to mail them. □

Cohn is a computer consultant in Atlanta, and hopes to make decent money in 2000 . . . because 1997 looks kind of sketchy.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COMPUTERWORLD

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JUNE 23, 1997

Intranets

A MONTHLY LOOK AT WEB DEVELOPMENTS BEHIND THE FIREWALL

LINKING BUSINESS PARTNERS

Inside Extranets

Hooking up with your suppliers and distributors is easier said than done. Cultural, business, network and data access issues must be conquered before partners can work as one. By Thomas Hoffman

They're the latest in business-to-business connections. They can cost less than $50,000 or up to $50 million to create. And no matter what vendors tell you, they're tough to build.

"Extranets" — that is, giving outsiders access to your internal information via Internet technologies — require more than simply tying together legacy systems with Internet Protocol addresses. Many companies that try to build extranets "fail to look at the value proposition and its impact on business processes" before they break ground, says Carl Lehmann, director of electronic commerce research at Meta Group, Inc. in Stamford, Conn. And those that do still face familiar security concerns (see story page 9) and the complications of getting all parties on the same technological page. Not to mention the potential ire of partners that may not realize the same benefits.

Still, savvy organizations that are seeking cheaper, more efficient ways to connect with their suppliers and business partners believe extranets are worth the time and effort. For some companies, particularly those in fiercely competitive industries such as healthcare,

INSIDE • TAKING A HOLISTIC APPROACH, PAGE 6 • DISTRIBUTORS GET WIRED, PAGE 18 • INSIDE

LINKING BUSINESS PARTNERS

Continued from page 1

extranets are a means of survival. (Such is the case for medical supplier Monitor Medical, Inc. See story page 6.)

Extranets can also go a long way toward streamlining age-old business connections throughout the supply chain. Simple extranets, such as those that offer browser-based access to a manufacturer's inventory and price list, can cost as little as $50,000 to build. More elaborate extranets that include search and discovery mechanisms, which could be used to locate a manufacturer's parts and price information over the World Wide Web, can cost tens of millions of dollars to implement.

LSI LOGIC'S Nicole Crawford estimates that the $3M her company invested in Unix and NT hardware and software to support its firewall and extranet paid for itself within 18 months through additional orders

But the payoffs can be more than worthwhile. PC wholesaler Metisel, Inc. has found that it's 70% cheaper to process a customer order through its extranet than to have one of its telesalespeople handle it over the phone, says Cameron Johnson, manager of customer information services at the El Segundo, Calif., company.

Nevertheless, most Fortune 1,000 companies that are looking to create competitive advantage through their extranet connections should expect to invest significant amounts of time, money and people to research and build these gateways, according to the pioneers that have blazed the first electronic trails.

CHIP-PING IN

Nicole Crawford began building her company's extranet two years ago, "before I even heard of the word 'extranet.' " Crawford, global security manager at LSI Logic Corp., said the Milpitas, Calif.-based chip designer was looking for an efficient way to transmit design information among itself, its subcontractors and its customers.

Since early 1996, LSI has been working with 12 of its top 100 customers over the extranet. "The time to market is part of what's driving this," says Crawford, whose company designed the chip that's used in the Sony Playstation, a 32-bit game machine from Sony Computer Entertainment America, Inc. that hit the market in time for Christmas '94, six weeks before its competitors. "If we can get chip design time shorter and shorter, it gives our customers competitive advantage."

It also keeps LSI's customers coming back for more. Crawford estimates that the $3 million LSI has invested in Unix and Microsoft Corp. Windows NT hardware and software to support its firewall and extranet paid for itself within 18 months through additional orders. LSI's competitors include resource-rich Motorola, Inc. and Intel Corp., so LSI has to work smarter to compete. As Crawford says, "If we want to play with the big boys, we have to have the same tools or better."

Yet even that doesn't guarantee success. It takes two or more organizations to make an extranet, and if LSI's customers have sloppy network addressing schemes, network translations can be a problem. "Sometimes you get into 'It's not my network problem, it's your network problem' types of arguments, and those can take months to resolve," Crawford says. That was the case with one of LSI's top subcontractors, which does a lot of engineering work.

Yet if LSI is a trailblazer, it certainly doesn't have the road to itself. Many of the companies employing extranet strategies are also in high tech or other industries marked by fierce competition and shrinking margins. These include industrial equipment manufacturers — electronics and electrical parts makers — and healthcare organizations, as well as the food and beverage industry, which feeds off 1% margins in the grocery business.

"If they can save a penny [per trans-

PHOTOGRAPH BY KATHRIN MILLER

Tips On Building an Extranet

MEET WITH KEY MANAGERS in different business units to plot what you're trying to accomplish.

HOLD FORUMS WITH KEY suppliers or customers who will be using the system to find out what kind of information they're expecting to access. That will help nip political and security issues in the bud.

MAKE SURE TO REFRESH Web pages regularly (every week or two) to keep information timely for visitors.

DON'T UNDERESTIMATE the costs for training and security. In addition to needing firewalls, you'll likely have to invest in security for legacy systems that customers will "touch." And because turnover is a constant at supplier and customer companies, training and retraining will be an ongoing exercise.

ILLUSTRATIONS BY MARC YANKUS

action], that can go straight to their bottom lines," says Liz Sara, vice president of marketing at SpaceWorks, Inc., a Rockville, Md.-based vendor of business-oriented electronic commerce applications

SHEDDING LIGHT

Some companies have a lot more than an Abe Lincoln to gain.

General Electric Co.'s GE Lighting division saw extranets as a more effective way to streamline order entry and the bid process with the companies that supply the parts for its machinery. The machines that make GE's lighting are made up of hundreds of parts, such as rods and gears, and GE Lighting spends up to $15 million a year on them, according to Ron Stettler, manager of global sourcing systems. It often took up to 21 days to get a part, he notes.

"It was a very labor-intensive process," Stettler says. "Putting out a couple hundred of those orders each day was quite an ordeal."

The company's first attempt at shortening its cycle times through an electronic bidding system built by sister company GE Information Services in January 1996 flickered out after just five months. Suppliers would often wait until the eleventh hour before posting their bids against the lowest bids that had been made. Further, it cost them a lot to use: Suppliers involved in hundreds of thousands of transactions annually were paying thousands of dollars just to bid on contracts, Stettler says.

The electronic marketplace was replaced in September with GEIS' Trading Process Network (TPN), an Internet-based electronic commerce system that's expected to generate $1 billion in contract opportunities for all of GE's worldwide suppliers this year. Stettler's piece, called TPN Post, required GEIS to connect GE Lighting's IBM mainframe-based purchasing system to the extranet. Now when suppliers seek information with their browsers, purchasing data is downloaded from the mainframe to a Hewlett-Packard Co. Unix server, then distributed onto an Oracle Corp. database and uploaded onto a Novell, Inc. file server.

On the user end, GEIS first worked with a cross section of suppliers on workflow and technical issues, then held focus groups. For those suppliers that bought new PCs to support TPN Post, GEIS helped them configure Windows. It assisted others with posting purchasing information electronically and pulling that data into their costing systems.

GE Lighting also held a four-hour training session for 55 suppliers last summer. "We had suppliers come in with button-down suits to Harley Davidson T-shirts, and they did just fine," Stettler says.

Not everyone is as happy as GE with the system, however.

One supplier said TPN Post has actually created more work for him. The extranet "really isn't an asset to us at all," says Bob Reiman, an account executive at Astro Model Development Corp., an Eastlake, Ohio-based machine shop.

Reiman says it's more time-consuming for him to pull a GE Lighting engineering drawing off the extranet, print it, analyze it and reply with a quote than it was to quote a job the old way. That's partly because his organization doesn't have a plotter printer, so he has a hard time scrutinizing large drawings that are shrunk down to 8.5 by 11 inches.

It recently took Reiman three hours to extract, analyze and respond to 13 drawings from GE Lighting's extranet — an hour longer than it used to take him via fax. "It's saving GE money, but it's causing us more work," Reiman says.

As GE demonstrates, bringing busi-

Continued on page 4

LINKING BUSINESS PARTNERS

Continued from page 3

ness partners online can take considerable effort. That's partly because many companies make the mistake of equating electronic data interchange (EDI) with electronic commerce. Whereas EDI is a set of standards used between companies and their customers or suppliers to facilitate business-to-business transactions, uniform technologies are by no means guaranteed in electronic commerce, which often extends beyond ordering and fulfillment processes. In addition, with a company's mission-critical databases a needed part of almost any extranet, access privileges and security become mammoth concerns.

IN MOST RESPECTS, extranets are at the same development stage that intranets were at this time a year ago, according to Ted Julian, an analyst at market research firm International Data Corp. based in Framingham, Mass.

But when those hurdles can be surpassed, EC offers added benefits. These include a "satisfaction component" of creating electronic bonds between suppliers and business partners rather than forcing EDI standards on them, Meta Group's Lehmann says. And that means it has more value.

Snap-On Tools Co. was out to create such an "electronic village" when it began rolling out an extranet to its 3,000+ U.S. dealers last year. The Kenosha, Wis.-based automotive tools distributor saw extranets as more than just a way of eliminating paperwork and shipping costs with its dealers. Snap-On's extranet "gave us an ability to be a single voice to the entire dealer channel," says Bob Gingras, Snap-On's manager of electronic commerce.

Like pioneers on the public Web, Gingras quickly learned that Snap-On had to keep its extranet site fresh to keep people coming back to it. "We've had to change the content constantly," says Gingras, who placed Snap-On's extranet hardware and software costs at less than $100,000, including setups for dealers that didn't already have browser software and Internet access. "Pilot users were giving us an 'A' for effort, but they wanted more of a newsgroup format and categorized chat rooms." Snap-On added those for the general rollout.

The digital community aspect can't be underplayed, says Mike Cummins, vice president of information systems at VHA, a national healthcare alliance in Irving, Texas. IBM is building it an extranet to electronically link community hospitals with health maintenance organizations and other healthcare players. "The long-run value for us in building an extranet is bringing these [organizations] into a [digital] community," Cummins notes.

HEALTHY RETURNS

Elsewhere in healthcare, cost savings play a huge role in some organizations' interest in extranets, as the industry grapples with the financial pressures of consolidation and managed care. That's the case at Claimsnet.com, an administrative services provider in the healthcare field that has shifted its "entire business model onto the Internet" since March following a two-year, $2.5 million investment, according to Bo W. Lycke, chairman and president of the Dallas-based outfit.

Claimsnet.com always operated online. Customers would use their modems to transfer claims information electronically to insurance "gateways" such as National Data Corp. But administrative services such as reimbursement management and claims processing required a lot of on-

Continued on page 9

A Sampling of Vendors

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LINKING BUSINESS PARTNERS

Medical Supplier Takes Holistic Approach

With cost pressures driving managed healthcare, more hospitals and clinics are finding it cheaper and senior to cut single mega-purchase orders for syringes and ventilators with medical equipment giants such as Baxter International, Inc. That means smaller players such as Monitor Medical, Inc. need every edge they can get.

Monitor's year-old extranet may provide that advantage by enabling customers to check inventories online, helping sales reps respond more quickly to activity in their accounts and maybe one day resulting in a national distribution network of other small suppliers.

"We're never going to be a Sears, Roebuck or a Baxter, so we have to be perceived as a progressive, technically savvy organization," says George Homme, a senior consultant at Electronic Solutions, Inc., the IT arm of $20 million Winston-Salem, N.C.-based Monitor Medical.

If he's successful at establishing a network of local distributors using the Internet, Homme hopes a big hospital chain such as Columbia/HCA Healthcare Corp. might place bulk orders with that group rather than with a bigger company such as Baxter. (Ironically, a company Baxter acquired in the 1980s pioneered the extranet concept — sans Internet technology, of course. American Hospital Supply Corp. was among the first to give customers the ability to place and track orders via a private SNA network.)

"WE HAVE TO BE **perceived as a progressive, technically savvy organization."**

— GEORGE HOMME

Monitor Medical's extranet also lets customers check inventory and order products. About 20% of Monitor Medical's customers are ordering supplies online today, representing about 8% of the company's total revenue stream. Homme expects online revenue to grow exponentially once other customers find out how the extranet can streamline the ordering process and reduce their costs.

But out all customers are embracing the concept. One healthcare provider notes that companies aren't likely to cast aside long-standing relationships with vendors and distributors just because one supplier has made its wares accessible over the Internet. At New England Medical Center in Boston, "There's politics, relationships built up with local vendors" that the hospital feels bound to maintain, explains William Howard, director of respiratory therapy. "If Monitor Medical was one of my preferred vendors, then it would be a different story," he adds.

Still, Howard says Monitor Medical's extranet in a terrific way to check inventories for specific products, and his group has used the system to order a small amount of computer hardware and software for his department. But shipping costs — it's cheaper for New England Medical to order medical supplies from a local distributor than from a distributor in North Carolina, Howard says — have also kept it from using the extranet more.

Payoffs for Monitor Medical so far include increased sales (though the figure of a 60% increase this year isn't attributable only to online sales), the ability to service that growth without increasing staff and a drop of 10% in phone bills, says Doug Constable, Monitor Medical's vice president of operations.

The system cost more than expected because the Web development tool, Progress Software Corp.'s WebSpeed, cost $20,000 more than Monitor Medical anticipated. But the tool probably saved the company $10,000 in programmer hours, Homme says.

The interactive order-entry system took less than six weeks to get up and running, Homme said. Security includes passwords and a system whereby information in E-mailed to the user's electronic-mail address.

— THOMAS HOFFMAN

PHOTOGRAPH BY WILL MCINTYRE

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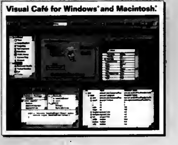

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LINKING BUSINESS PARTNERS

Security Takes on New Meaning With Extranets

Users encounter issues from political battles to sensitive information to cost

The familiar Internet issue of security takes on a whole new dimension with extranets, as users must deal with the political wranglings and sensitivity of their electronic business partners, not to mention the added costs of protecting internal systems from unwanted visitors.

Here are some problems users have encountered and the way they are resolving them:

PROBLEM: LSI Logic's customers wanted access to all of the chip designer's internal systems because that approach would be more efficient for them. But in the competitive microprocessor field, that raised the risk of cross-pollination of competitive information.

RESOLUTION: LSI modified the applications that each customer was allowed to access. Customers have been given passwords and identification codes to access specific applications.

LSI built a firewall "complex" that relies on several layers of security, including packet filters and an encryption algorithm built by Sun Microsystems, Inc. called simple key management of IP, or SKIP. LSI's firewall has also been modified to recognize each visitor's IP address and determine who has access to which files.

Those modifications aren't cheap. To ensure that its clients accessed only engineering information relative to their chip projects, LSI had to partition an engineering design tracking application, bring it inside its firewalls and add a server to support it. Labor and equipment came to $150,000, says Nicole Crawford, global security manager at LSI. "Oh, yeah, those types of costs are never going to stop," she added.

PROBLEM: Securing a data warehouse accessible to MasterCard International, Inc.'s 23,000 member banks over an extranet.

RESOLUTION: MasterCard uses Bedford, Mass.-based Secure Dynamics, Inc.'s SecurID technology. It gives users a small device with a small digital display with six digits that change every two minutes. When users log on to the system, they use the passcode that appears on the card.

SecurID "adds a layer of protection" to MasterCard Online, says Sam Alkhalaf, senior vice president of technology and strategic architecture at MasterCard in St. Louis.

PROBLEM: Reassuring anxious users that a site is secure.

RESOLUTION: Merisel, an El Segundo, Calif.-based PC wholesaler, has infused its site with four levels of passwords that visitors must input to visit the site. That hasn't reassured everyone, however.

Some of Merisel's loyal customers still won't go near it, "afraid that the information that's passing through isn't secured," says Cameron Johnson, manager of customer information services at Merisel.

— THOMAS HOFFMAN

Continued from page 4

site meetings, software installations and training for customers. After a while, it got too expensive for Claimsnet.com to continue installing PCs, modems and software at each client site, says Terry Lee, an executive vice president. And customers didn't get off easy either: Software cost $500 to $2,000 to install, three days of training cost $2,000, and then there was a monthly subscription fee of $200, Lee says.

But the Internet changes all that. Doctors and dentists who want to use the service simply use standard Web browsers to visit the site to gather outpatient claims information for free. (To help protect sensitive patient data, Claimsnet.com created individual extranet sites for each of its doctors and dentists. "It's kind of a padded-cell environment for our customers," Lee explains.) Claimsnet.com collects the claims processing fees from health-care insurers.

Whatever a company's goal — cost savings, increased sales, better business relationships, efficiencies that enable all three — an extranet may be the way to achieve it. In fact, if history tends to repeat itself, that may prove more true than not. Extranets are in the same developmental stage that intranets were a year ago, according to International Data Corp. analyst Ted Julian. That may mean that a year from now, adoption will be considerably more widespread.

Hoffman is a Computerworld senior news editor, IS management.

PROJECT: SILVERPLATTER INFORMATION, INC.

Database Firm Hands Distributors Wired Access

By Steve Alexander

SilverPlatter Information, Inc. in Norwood, Mass., is a database firm that provides information to universities, hospitals and libraries, mostly on CD-ROM or magnetic tape. Its extranet, the Partner Information Center, provides up-to-date account information to distributors that sell subscriptions to SilverPlatter's bibliographic databases, which contain descriptions of articles on topics from agriculture to health science. Some distributors can also place their orders via the extranet.

About half of SilverPlatter's 200 distributors have access to the extranet, and about 50 are regular users. Those not using it do business via faxes and phone calls. Tina Majanlahti, electronic reference library project manager at Canadian distributor IHS/Micromedia in Toronto, says the extranet helps her firm provide timely account information to customers. "It means that communication comes to the customers from our company, even though it originally came from SilverPlatter. That enables us to better reinforce our position as the customer contact," Majanlahti says.

Tom Bergman, SilverPlatter's senior developer, explains the extranet project:

WHAT DISTRIBUTORS CAN ACCESS

Detailed information on orders, customers, financial information and product shipments. Reports are generated on the fly. Distributors will soon, if they can't already, be able to place renewals and new orders through the extranet.

WHAT THEY CAN'T ACCESS

Information on competitors' orders. Providing safeguards to control what distributors can see was the biggest challenge. SilverPlatter created database tables that allow distributors to quickly search only their own customer set based on a customer number, a customer name, a distributor ID number and an "integer field" that counts how many valid orders the distributor has with that customer. The integer field is updated each time customer orders are added or changed; when it reaches zero, that customer's record becomes unavailable to that distributor.

COST AND ROI

The cost was about $36,000 ($25,000 to develop the application, $6,000 to license the development tool and $5,000 for a server). No return on investment analysis has been done because the expenditure was considered small and fulfilled an obvious need. The company already had a T1 connection to the Internet and a customer database.

STAFFING

The extranet has not changed the level of staffing at the 250-employee company, but it has allowed people who spent time providing information to distributors by phone or printout to be reassigned to more productive work.

TOOLS

Progress Software's WebSpeed is the development tool SilverPlatter used to generate the HTML pages. The WebSpeed product consists of an interface between the company's Web server and a pool of Progress Software intermediaries that look like clients; these take Web requests and obtain information from the Progress database. As a result, there were no compatibility issues, and the setup was relatively easy.

SECURITY

SilverPlatter authenticates users by checking IP addresses, passwords and user IDs. Before fulfilling a Web information request, the software compares the requester's ID information with a table of ID information in the database.

DISTRIBUTOR REACTION

Most like it. Some have employees who would rather call than use the extranet, but this problem is diminishing as SilverPlatter urges distributors to provide Internet access to their employees who deal with SilverPlatter. For now the company won't turn away distributors that prefer the old fax and phone method of doing business, but in the long run the difficulty of dealing with such distributors could affect that decision.

SilverPlatter's Tom Bergman: Extranet saves time and money and serves distributors better

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PHOTOGRAPH BY JACK FOLEY

THE HP DOMAIN
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BOTH PLATFORMS

COMMENTARY

Recycling the surplus

DAVID MOSCHELLA

LIKE THE ARAB oil states in the late 1970s, Microsoft now has more money than it knows what to do with. Its cash balance has reached $9 billion and is still rising rapidly. It's starting to get embarrassing.

Because there is only so much the company can reinvest in its current software products, Microsoft's entry into nonsoftware IT markets was inevitable. Indeed, it would be sad if Bill Gates felt that Microsoft's great wealth was best spent on huge dividends or non-IT ventures such as hotels or golf courses.

Over the past few years, Microsoft has broken new ground with The Microsoft Network, MSNBC, WebTV and most recently, the $1 billion investment in Comcast, the nation's fourth-largest cable television provider. Then there's Bill Gates' personal investments in Teledesic, Corbis and other areas. Clearly, Microsoft is no longer just about "micros" or even "software." Its name is becoming an anachronism in much the same way that International Business Machines and National Cash Register have become. Perhaps someday a simple "MS" will do.

PARALLELS WITH IBM

There are, of course, more tangible parallels with IBM. At the peak of its power from 1978 to 1984, IBM also was awash with cash. It created Satellite Business Systems, acquired Rolm, bought stakes in MCI and a then-weak Intel, established the IBM Information Network and the IBM Credit Corp., and generously sprinkled money across various pro-IBM independent software vendors.

Although the industry watched in awe, the results proved modest. Monopoly power in one segment didn't assure success in largely unrelated areas. Neither did unlimited amounts of cash. History suggests that if Microsoft is to dominate nonsoftware portions of the IT industry, it will have to earn it segment by segment, against formidable competition such as AT&T, Time Warner, Viacom and others.

This new competition will likely benefit us all. No matter how self-serving it seems, much of what Microsoft and, for that matter, Intel, are doing is designed to move the IT industry forward. Today's Wintel investments extend our industry's frontiers in areas such as communications bandwidth, interactive content, digital broadcasting and PC/TV integration. These are risky and expensive endeavors that require committed leadership.

In the 18th century, political philosophers used the phrase "enlightened despot" to refer to monarchs who, although possessing absolute power, tried to use it in a benevolent way that would move society forward. Bill Gates is perhaps anything but benevolent, but when it comes to the potential of digital technology, few are as enlightened, romantic or committed. His bets won't be frivolous.

But will they pay off? In the end, both the Arab windfall and IBM's accumulated might passed quietly. Their riches wound up being recycled in ways that benefited others as much as themselves. As I will argue in future columns, although Microsoft's software power will almost certainly become even more frightening, its impact in telecommunications, broadcasting, content and network services will likely remain modest. The surplus needs to be absorbed somewhere. □

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Corporate Strategies

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Briefs

Bank taps EDS

The First National Bank of South Africa has inked a 10-year, $525 million check processing and data services contract with Electronic Data Systems Corp. in Plano, Texas. The bank will transfer 350 employees to EDS as part of the contract.

Internet travel service

American Express Co. and Microsoft Corp. are displaying early versions of "Project Rome," a new Internet-based service for booking business travel over the Internet. The service was designed to save companies time and money by automating the process of booking trips — building in rules to ensure better compliance with company policies and contracts than if executives booked their own travel at their own discretion.

Consultants merge

Technology Solutions Co. (TSC) in Chicago has announced plans to acquire The Bentley Group, a Boston-based information technology consulting firm that offers customer relationship management services to Fortune 500 firms. Under the terms of the agreement, TSC will acquire the operations of The Bentley Group through a stock, stock option and cash transaction valued at $19 million.

Shell sells software

Simulation Sciences, Inc., a petroleum industry software developer in Brea, Calif., has announced plans to acquire Shell Oil Co.'s business planning and process-control software for $1.5 million.

Bakery outsources

Stroehmann Bakeries, Inc. in Horsham, Pa., has outsourced its data processing services to Systems Management Specialists (SMS) in Santa Ana, Calif. Under the three-year, $1.8 million agreement, Stroehmann's information technology and data processing operations will be managed at SMS' data center in Princeton, N.J.

Kentucky beefs up network

▸ *State's education department chooses Windows NT Server*

By Laura DiDio

WITH 1,400 schools, 650,000 students and 50,000 teachers and administrators, the Kentucky Department of Education is big business.

And like any big business, the department needed to implement a cost-effective, long-term network strategy to deliver applications and provide access to the Internet faster, cheaper and easier.

The new network setup will be the equalizer in education, giving students in even the poorest Appalachian school districts access to the same information as their peers in richer districts such as Lexington and Louisville. That will allow students to be in a better position to compete for scholarships and jobs after they graduate, said David Couch, the department's director of the Office of Education Technology in Frankfort.

The new network setup will be the equalizer in education

The Kentucky Department of Education is replacing much — though not all — of its existing Novell, Inc. NetWare 3.12 networks with Microsoft Corp.'s Windows NT Server and upgrading from Microsoft Mail 3.5 to the latest version of Microsoft Exchange.

Usage of Microsoft Mail was doubling every month, and the traffic was straining the bandwidth limits of existing 56K bit/sec. and T1 lines.

"And that's with only half of our 700,000 users and 1,400 schools networked. So we knew we needed to do something within the year," Couch said. Upgrading to Exchange 4.0 alleviates the bandwidth problem and increases the reliability of the electronic mail sent between department users and outside organizations, he added.

"The upgrade will allow [the department] to save nearly

Kentucky, page 46

Giga Information Group's Stephanie Moore says that if your IS shop has no experience using offshore programmers, year 2000 projects are "not the time to cut your teeth"

Client/server users must push for year 2000 tools

By Thomas Hoffman
SCOTTSDALE, ARIZ.

AUTOMATED SOFTWARE to test and convert legacy systems for year-2000 compliance is practically leaping off vendors' shelves. But for client/server and distributed systems, vendors' cupboards are practically bare.

That's only one of several shortcomings in distributed systems environments that exacerbate the problems the year 2000 will bring for project managers.

Unlike mainframe applications, end-user departments often own and operate distributed software.

In decentralized shops, end users aren't as aware of the looming millennium bug as are information systems staffers. For that matter, IS often isn't aware of date-sensitive code that might reside in a desktop spreadsheet.

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LOOKING FOR FIXES

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Distributed, page 46

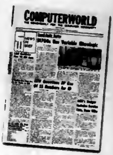
OPINION

Computerworld goes back to the future

By Gary H. Anthes

COMPUTERS WERE expensive 25 years ago, but newspapers were cheap.

An annual subscription to *Computerworld* in 1972 would have set you back $9, but I'll give you the June highlights here for free.



In 1972, Burroughs was big, and users debated writing their own operating systems

The computer world, and *Computerworld*, a quarter century ago were dominated by men, mainframes and IBM. Bill Gates was in high school. The minicomputer, the PC, Java, the World Wide Web and the year 2000 problem weren't yet on the horizon. Life was blissfully simple for the IS manager, whose greatest challenge was getting programs to run in less memory than you have today in your car's automatic transmission.

96K MEMORY

The lead story on June 14 describes — in excruciating detail and turgid prose — the new Burroughs B1700 business computer. Highly touted features include support for the new 96-column punched card, 96K bytes of memory and a price of $475,000 (about $1.3 million in today's dollars).

Computerworld, page 46

Corporate Strategies

Case Studies • Trends • Outsourcing

Briefs

Bank taps EDS

The First National Bank of South Africa has inked a 10-year, $325 million check processing and data services contract with Electronic Data Systems Corp. in Plano, Texas. The bank will transfer 550 employees to EDS as part of the contract.

Internet travel service

American Express Co. and Microsoft Corp. are displaying early versions of "Project Rome," a new Internet-based service for booking business travel over the Internet. The service was designed to save companies time and money by automating the process of booking trips — building in rules to ensure better compliance with company policies and contracts than if executives booked their own travel at their own discretion.

Consultants merge

Technology Solutions Co. (TSC) in Chicago has announced plans to acquire The Bentley Group, a Boston-based information technology consulting firm that offers customer relationship management services to Fortune 500 firms. Under the terms of the agreement, TSC will acquire the operations of The Bentley Group through a stock, stock option and cash transaction valued at $19 million.

Shell sells software

Simulation Sciences, Inc., a petroleum industry software developer in Brea, Calif., has announced plans to acquire Shell Oil Co.'s business planning and process-control software for $1.5 million.

Bakery outsources

Stroehmann Bakeries, Inc. in Horsham, Pa., has outsourced its data processing services to Systems Management Specialists (SMS) in Santa Ana, Calif. Under the three-year, $1.8 million agreement, Stroehmann's information technology and data processing operations will be managed at SMS' data center in Princeton, N.J.

Kentucky beefs up network

▸ *State's education department chooses Windows NT Server*

By Laura DiDio

WITH 1,400 schools, 650,000 students and 50,000 teachers and administrators, the Kentucky Department of Education is big business.

And like any big business, the department needed to implement a cost-effective, long-term network strategy to deliver applications and provide access to the Internet faster, cheaper and easier.

The new network setup will be the equalizer in education, giving students in even the poorest Appalachian school districts access to the same information as their peers in richer districts such as Lexington and Louisville. That will allow students to be in a better position to compete for scholarships and jobs after they graduate, said David Couch, the department's director of the Office of Education Technology in Frankfort.

The new network setup will be the equalizer in education

The Kentucky Department of Education is replacing much — though not all — of its existing Novell, Inc. NetWare 3.12 networks with Microsoft Corp.'s Windows NT Server and upgrading from Microsoft Mail 3.5 to the latest version of Microsoft Exchange.

Usage of Microsoft Mail was doubling every month, and the traffic was straining the bandwidth limits of existing 56K bit/sec. and T1 lines.

"And that's with only half of our 700,000 users and 1,400 schools networked. So we knew we needed to do something within the year," Couch said. Upgrading to Exchange 4.0 alleviates the bandwidth problem and increases the reliability of the electronic mail sent between department users and outside organizations, he added.

"The upgrade will allow [the department] to save nearly

Kentucky, page 46

Giga Information Group's Stephanie Moore says that if your IS shop has no experience using offshore programmers, year 2000 projects are "not the time to cut your teeth"

Client/server users must push for year 2000 tools

By Thomas Hoffman
SCOTTSDALE, ARIZ.

AUTOMATED SOFTWARE to test and convert legacy systems for year-2000 compliance is practically leaping off vendors' shelves. But for client/server and distributed systems, vendors' cupboards are practically bare.

That's only one of several shortcomings in distributed systems environments that exacerbate the problems the year 2000 will bring for project managers.

Unlike mainframe applications, end-user departments often own and operate distributed software.

In decentralized shops, end users aren't as aware of the looming millennium bug as are information systems staffers. For that matter, IS often isn't aware of date-sensitive code that might reside in a desktop spreadsheet.

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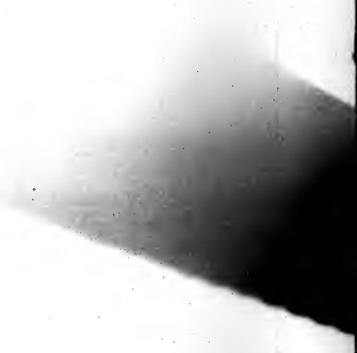
Computerworld, page 46

Introducing servers that will change the way you look at your current one.



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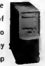

Kentucky beefs up schools' network

CONTINUED FROM PAGE 43

$2 million in district and state funds, increase the network response rate to the Internet by fourfold and increase the network capacity to each of our 176 school districts statewide by 24 times," Couch said.

About $1.4 million of that savings will come from slashed telecommunications costs. Because the new network is IP-only, all the school districts will use the state's frame-relay connection to link to the network, rather than pay for their own 56K bit/sec. and T1 lines for IPX connections.

SHARING THE DATA

Moving to Exchange 4.0 also will give the department an organized way to share, via public folders, all word processing, spreadsheets, database E-mail lists, group schedules and calendars in the school districts' intranet, Couch said.

When the department opted for Exchange, Windows NT Server was the natural choice — at least for its 176 district offices, eight regional service centers and the department's administrative offices. "The cost for us as an educational institution to switch to Windows NT Workstation and Windows 95 is $85.50 per workstation and $80 to $90 for Windows NT Server," Couch said. By contrast, he claimed it would cost about $1,000 to upgrade to a comparable NetWare/IntranetWare 4.x server.

NetWare won't disappear, though. The Kentucky Department of Education will let its various school districts — about 50% of which are networked — choose their own operating systems.

NEW VS. SIMPLE

"NetWare is proven, reliable technology, and our network administrators are familiar with it. Windows NT Server, while easy to learn, is still relatively new," Couch said. "In rural parts of Kentucky, technical support is a big issue. If any of our schools want to keep NetWare, that's their decision."

But Windows NT Server is proving to be less expensive to implement than NetWare on the department's wide-area network (WAN) links. The Kentucky Education Technology System continuation budget mandates that the department maximize the current WAN lines.

The simplest way to achieve that was to move to frame relay and run one network protocol instead of two.

The department standardized on TCP/IP and decided to eliminate Novell's IPX.

"Microsoft Exchange works best with Windows NT Server. And frame relay runs most efficiently on an IP-only network; Windows NT has a better TCP/IP implementation than NetWare, which only does IP tunneling," Couch said. □

SCHOOL SYSTEM

Why the Kentucky Department of Education switched from NetWare 3.12 to Windows NT Server:

- **Integration and coexistence with legacy systems and a new third-party application**
- **Costs $900 less per server than a NetWare 4.x upgrade**
- **Ability to support 250,000 active connections and 700,000 user accounts**
- **Native support for TCP/IP**
- **Support for a variety of monitoring and administrative tools**
- **Better compatibility with the Internet and intranet services**

Distributed year 2000 tools lacking

CONTINUED FROM PAGE 43

nies that go out of business as a result of software failures, Phillip R. Murphy said.

Murphy is manager of year 2000 compliance at the National Council on Compensation Insurance, Inc. in Boca Raton, Fla. The company collects workers' compensation statistics in more than 30 states.

Like other year 2000 managers, Murphy said he will be satisfied with nothing short of full compliance by third-party vendors.

FEW SPECIAL TOOLS

There also is a dearth of tools available for firms that have developed their own distributed applications using development software such as Powersoft Corp.'s PowerBuilder and Microsoft Corp.'s Visual Basic.

Moore said the handful of tools vendors for distributed applications include the following:

- San Francisco-based Forecross Corp. (*www.forecross.com*), is a 16-year-old vendor that runs a software factory that converts C++ and legacy programs for customers such as AT&T Corp., Charles Schwab & Co. and Bear, Stearns & Co.
- Software Emancipation Technology, Inc. (*www.setech.com*) in Lexington, Mass., has a Discover tool that is the leading conversion kit for C and C++ applications.
- AstraTek, Inc. (*www.astratek.com*) in New York has created VisualAudit, a discovery tool that analyzes and identifies date-sensitive data elements in Excel worksheets, including date-formatted cells.

"There really are no ready-made" year 2000 tools for distributed systems, said Stephanie Moore, an analyst at Giga Information Group.

The software is a hit among Wall Street spreadsheet power users, Moore said.

AstraTek has extended VisualAudit to discover date-sensitive programming for programs developed with Visual Basic and Access.

There could be a strong need for such a tool by banks and brokerages. "If you're a [spreadsheet] power shop, you're going to be a little more sensitive to [year 2000]," said John Doggett, a vice president at BankBoston in Boston. □

Computerworld editor goes back to the future

CONTINUED FROM PAGE 43

The front-page story reads like a Burroughs sales brochure, and not a single user, analyst or company official is quoted.

Another front-page story tells of worries about the growing use of Social Security numbers as a personal identifier and of the "potential harmful consequences" of automated personnel systems. A committee to study the matter was appointed by U.S. Secretary of Health, Education and Welfare Elliot Richardson.

Elsewhere in the all-black-and-white issue, we learn that the average charge to the government by outside consultants for systems analysis is $16.80 per hour. Today, Uncle Sam is paying five to 10 times that amount to fix the year 2000 problems created by those same people.

SYSTEMS MEN

Another story reports the results of a survey by the Association for Systems Management (ASM) that says the median annual salary for "analysts, senior analysts and IS managers" has reached $16,739, or about $45,000 in today's dollars.

According to the ASM, "Today's systems managers are candidates for executive positions because their training and skills bring a most needed quality to the executive ranks." But only if you are male, it seems; the ASM's finding are in a $5 report, "Profile of a Systems Man."

But there were also systems women 25 years ago. Under a headline, "Gal Engineers Set Computer Meet," we learn of an upcoming conference of the Society of Women Engineers. Keynote speaker: U.S. Navy Commander Grace Hopper, head of Navy Programming Languages.

On the editorial page, a Viewpoint piece ponders whether user companies ought to develop their own operating systems. (As Dave Barry would say, I am not making this up.)

It tells of a company, Moses Plastics, that wrote "Osmoses" to run on the Marketronics 4000 Series computer, even though Marketronics apparently supplied a perfectly good operating system of its own.

I won't spoil it by telling you what happens to Moses, in case you haven't yet gotten to that issue of *Computerworld*. (Hint: the company is no longer in business. In fact, most of the companies in the June 1972 issues of *Computerworld* are no longer in business, a notable exception being IBM.)

Computerworld was embarrassingly vendor-centric 25 years ago. One of the few user-oriented stories tells of Bertea Corp. in Irvine, Calif., reported to be the first buyer of an IBM 370/155 mainframe. A company official is quoted as saying the system arrived on a Friday, was up on Saturday, was accepted by the user on Sunday night and went into production Monday morning.

Eat your heart out, 1990s IS manager. □

Anthes is Computerworld*'s senior editor for special projects.*

SHORTS

Hotel software

The Fairmont Hotel Management Co. in San Francisco plans to install Newmarket Software Systems, Inc.'s Global SFA sales force automation software. Fairmont plans to use the software at its seven properties and national sales offices nationwide. Terms of the agreement weren't disclosed. Newmarket Software Systems is based in Portsmouth, N.H.

Firm's Adage

Cumberland Packaging Corp., a Brooklyn, N.Y.-based manufacturer of Sweet 'N Low and other products, has licensed Systems & Computer Technology Corp.'s Adage enterprise resource planning software for companywide manufacturing, distribution and financial management. Cumberland will implement Adage on Data General Corp. Aviion servers in a Microsoft Corp. Back Office environment running Windows NT. Terms of the agreement weren't disclosed.

Briefs

Not ready for prime time

Most couch potatoes won't surf the Web on their TVs for at least three years. It will take that long to build the right hardware and create interesting content, such as weather reports, white-page directories and take-out food ordering, according to a recent survey of 93 Web developers and vendors.

Source: Forrester Research, Inc., Cambridge, Mass.

Site Server in beta

Microsoft Corp. started beta-testing Site Server 2.0 and Site Server Enterprise Edition 2.0, the newest components of its BackOffice suite of products that run on Windows NT Server. Site Server lets businesses customize the content and deployment of their World Wide Web sites. The Enterprise Edition contains features that let users conduct business on and manage their Web sites. Site Server will cost $1,499. Site Server Enterprise Edition will cost $4,999. Additional commerce sites on a single server will cost $499 per site. Site Server is due to ship this summer.

Wireless Internet

WarpDrive Networks, Inc. in San Jose, Calif., plans late this month to announce broader availability of its wireless Internet connectivity service in bandwidth increments from 256K to 10M bit/sec. The service is now available in San Jose.

Middleware security

Candle Corp. in Santa Monica, Calif., is scheduled on June 30 to formally announce security software for IBM's MQSeries messaging middleware. Called MQSecure, the package offers message validation, authentication and encryption.

L. L. Bean puts folksy feel into its Web site

▸ *Catalog company goes beyond static pages*

By Mitch Wagner

L. L. BEAN, INC. views the Internet as a way of giving its catalog customers worldwide the same service they would receive if they walked into the company store on Main Street in Freeport, Maine.

"We look at this as an extension of our current business," said Steve Roberts, senior new-media analyst at L. L. Bean. "The Internet is a great place to further describe who we are as a company, project our brand and personality online and also cut some costs."

Bean's World Wide Web site at *www.llbean.com* combines sales of about 1,000 of the company's 16,000 items with background information about the company.

USEFUL INFORMATION

That much is nothing new for an online retail site. But Bean has tried to take things a step further. Besides describing the products, it gives customers detailed information about how to use them and offers information about the great outdoors, including guides to eight national parks. And Bean has tried to weave it all together into a site with the same folksy, watercolor look and feel of its paper catalog.

L. L. Bean's Steve Roberts says Web sales are low, but costs are even lower.

"The site is an improvement over a lot of the really early catalog sites that were nothing more than a translation of what was on paper to static Web pages," said Nicole Vanderbilt, an analyst at Jupiter Communications, Inc. in New York. "They don't limit themselves to the same kind of short blurb that's on catalog pages. As catalogers become aware of the unlimited number of pages available online, they can start to develop richer, lengthier and more topical content."

A simple information-oriented site when it went online two

L. L. Bean, page 49

Internet mail delivers the goods

▸ *Features catch up to proprietary systems*

By Barb Cole-Gomolski

IT'S GETTING harder and harder to distinguish Internet-based mail systems from most other electronic-mail systems out there.

A year ago, companies were trying to decide whether to move to Internet mail or to proprietary systems such as Lotus Development Corp.'s Notes. Today, most users said, the line has blurred, and even products such as Notes, Microsoft Corp.'s Exchange and Novell, Inc.'s GroupWise — with their improved Internet Protocol hooks — are considered to be Internet E-mail software.

At the same time, Internet mail systems are beginning to incorporate the features previously available only in proprietary environments.

MIX AND MATCH

Those moves are a result of the overwhelming popularity of Internet-based mail systems, which let users mix and match clients and servers from different vendors and potentially reduce administrative costs.

"Everyone agrees that open "standards are the way to go," said Don Garvey, assistant vice president at Chubb & Son, Inc., an insurance company in Warren, N.J. Now the question is whether to pick a system that was designed from the ground up to run on IP networks or one that has recently gained Internet hooks," he said. Chubb plans to move 10,000 users from a mainframe mail system to either Notes or Netscape Communications Corp.'s Messaging Server.

CLOSER LOOK
Internet
E-mail

"There are few sites today that would install a completely proprietary mail system," said Paul Hoffman, co-chairman of the Internet Mail Consortium, an industry group in Santa Cruz, Calif. "This is a big switch from the old days, when one messaging vendor met your needs."

Other organizations, such as the Missouri Department of Highways and Transportation in Jefferson City, have adopted a dual strategy in which they run a mail backbone based on the X.400 mail transport standard in addition to an Internet gateway. The agency uses a Missive gateway from Wingra Technologies, Inc. in Madison, Wis., to hook up to the Internet. That lets the agency leverage the security of Notes without losing out on Internet hooks, said Frank Senter, a senior information specialist at the agency.

Analysts also expect the widespread adoption of Internet Message Access Protocol 4 (IMAP4), a more sophisticated IP messaging protocol, to advance Internet messaging. With IMAP4, companies won't have to sacrifice features to go to the Internet for messaging, said Mark Levitt, a research manager at International Data Corp. in Framingham, Mass.

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Wrestling with Web privacy

By Sharon Machlis

A GROUP THAT oversees Internet standards is devising a way for World Wide Web sites to publish privacy policies and help users decide if their preferences match those of the pages they visit.

The World Wide Web Consortium (WWWC) in Cambridge, Mass., will host the first technical meeting on the project, called Platform for Privacy Preferences (P3), late this month. It is one of several efforts unveiled earlier this month during federal Internet privacy hearings. Consortium officials said P3 is

Web privacy, page 49

PRIVACY OPTIONS UNDER WWWC PROPOSAL

- I want to access all Web sites
- I will allow sites to share my data
- Sites may share my data if I can review the information
- Sites may use my data internally only
- Sites may use my data only for the specific reasons I give them
- I want to be nearly anonymous

Source: World Wide Web Consortium, Internet Privacy Working Group

The Internet

The World Wide Web • Intranets • Online Services

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Source: World Wide Web Consortium, Internet Privacy Working Group

Commerce

Grant me the strength to resist fads,
The wisdom to recognize legitimate plans,
And the sheer blind luck to know the difference.

The IS Manager's Prayer

So, what makes BackOffice different?

Now, for the first time, we can offer you not just another bunch of applications but a sane and sensible approach to evaluating technology solutions. It's called Microsoft® BackOffice™ and it delivers something you probably don't expect from technology—simplicity.

BackOffice works *on Windows NT® Server and Windows NT Server works on pretty much any system you might have in place. You can add a single Windows NT Server into your NetWare or UNIX environment and start running a BackOffice-based solution tomorrow. And Windows NT Server is tremendously scalable. So you can actually move the technology forward in well-planned steps, instead of the white knuckle, all-or-nothing leaps IS people are frequently forced to make.*

Microsoft BackOffice is a family of server software applications built around three core philosophies.

Integration: *You should be able to add new server capabilities into your existing system without starting from scratch. Moreover, you should expect cooperation between server products.*

Comprehensiveness: *Every BackOffice server will do its appointed task entirely and efficiently. Furthermore, the family of BackOffice products, taken together, covers a comprehensive range of business needs. And as businesses demand more from technology, BackOffice will continue to anticipate these demands.*

Simplicity: *A solution should not be any more difficult than it has to be. Thanks to their integration with Windows NT Server, thanks to their familiar interface, thanks to a bunch of basic design decisions, you will find BackOffice server applications to be easier to install, deploy and administer than any other system. It's that simple.*

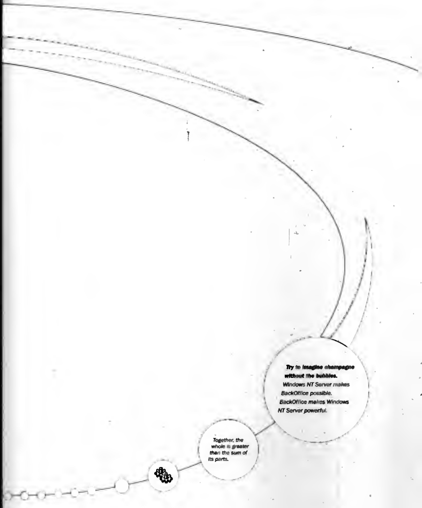
○ ○

As goes BackOffice, so goes Windows NT Server. *These three philosophies also apply to the relationship between BackOffice server products and Windows NT Server. Not only is Windows NT Server famously easy to administer, but its integration with the BackOffice family of products means that most administration tasks need only be performed once—for example, you just create one account per user, no matter how many applications they use. And Windows NT Server is inherently scalable—you can run a single Windows NT Server in a mixed environment or you can build a global network that runs entirely on Windows NT.*

What about the Internet?

For quite some time now people have been promising you that the Internet/intranet would change the way you do business. But they never explained how that was supposed to happen. Microsoft BackOffice provides a range of software solutions that embraces Internet standards and provides all kinds of Internet and intranet functionality. Giving people access is easier Creating killer Web sites is easier Creating an extranet for your outside vendors and partners is easier. Doing business on the Web is easier And that makes it easier to decide on a smart Internet/intranet strategy for your company.

Well, what about it? *Microsoft Windows NT Server has an Internet strategy built in. It's called Internet Information Server IIS lets you create, deploy and administer a simple Web site or a full-blown corporate intranet. IIS lets people in your organization view information stored in BackOffice or existing systems using a standard browser IIS includes: Active Server Pages so programmers and designers can create dynamic content; FrontPage™ server extensions for one-button publishing to the Web, NetShow™ conferencing software for multimedia on the Web, and more.*



Try to imagine champagne without the bubbles. *Windows NT Server makes BackOffice possible. BackOffice makes Windows NT Server powerful.*

Together, the whole is greater than the sum of its parts.

BackOffice is not a noun. BackOffice is an adjective. For example, if you did your job well, collaborated effectively with your coworkers and were basically enjoyable to work with, you'd be a BackOffice kind of person.

Internet mail delivers

ONTINUED FROM PAGE 47

n IMAP4-compliant servers vailable now, and twice as nany IMAP4 clients.

Users who migrated to Interet E-mail systems said they ave reduced their administraive load and now support more sers per server than with their egacy systems.

"Before we migrated, our nail administrator would have o come in on the weekends to o maintenance on the system," aid Robert Massey, an engieering systems administrator t Wright Medical Technology, nc., a manufacturer of artificial oints in Arlington, Tenn.

Wright Medical is moving approximately 400 users from Lotus' CC:Mail to Sun Microsystems, Inc.'s Sun Internet Mail Server.

Although Internet mail systems have come a long way, there are still issues that keep corporations from pulling the plug on their closed, legacy mail systems.

Hoffman said security and improved management tools need work.

"The fixes for problems like spoofing [in which someone bounces junk E-mail at your mail server] have yet to be 'productized.' In the area of security, the addition of digital signatures will help button up Internet mail," Hoffman said.

Overall, the once-polarized worlds of Internet mail and proprietary mail have moved much closer.

For large sites, it means they can once again evaluate products on their merits, as opposed to whether they support IP standards.

"Within six months, it will be even harder to tell the difference between an Internet mail system and the ones we used to call proprietary," Garvey said. □

A sample of mail clients designed to work only on the Web

Vendor/product	Function	Price
Net Manage/ Z-Mail Pro 6.1	Supports advanced features of IMAP4, including the ability to store mail on servers, share mailboxes and keep hierarchical folders.	$79
Micro Computer Systems/ Calypso 2.1	Lets users launch their browser by selecting a uniform resource locater in the body of a message. Users can access and view multiple E-mail accounts from one mailbox.	$59.95
E Corp./ EMail 97	Supports Lightweight Directory Access Protocol and advanced message filtering. The client software automatically selects and creates icon-driven shortcuts.	$29.95

Web privacy gets focus

ONTINUED FROM PAGE 47

ne piece of an overall plan to elp consumers implement eir own privacy policies each me they surf the Web.

P3's goal is to make it simpler r consumers to decide if they want to provide personal infor-ation to a Web site. For examle, some people would be willng to provide details about their vorite reading subjects to reeive personalized news pages - but not if the site resells data other marketers.

Some sites already publish ivacy policies, but critics arge that those can be difficult to locate on the site.

Under P3, users would enter privacy preferences into their browsers based on a wide range of options regarding the circumstances under which they wish to release their names, addresses, hobbies, interests and the like. For users who don't want to go through such a huge list, there could be several broad preset options, ranging from remaining mostly anonymous to accessing all sites regardless of privacy policies.

"I think that's certainly something we would be interested in exploring," said Shadrach Todd, manager of systems development at Time, Inc. New Media in New York. Time's site already publishes a privacy statement and collects personal data, and Todd said be was interested in the possibility of letting users control the types of data they provide.

A consortium of corporations and advocacy organizations, the Internet Privacy Working Group, is meeting separately to develop language for defining users' privacy preferences and Web site policies. P3 will devise technology that implements that language by letting user preferences be automatically compared to a site's policy.

If someone seeks more protection for personal data than a site provides, the user would be asked if be wanted to make an exception to access the site.

If user preferences and site policies match, the actual data exchange would be handled by Open Profiling Standard, another standard-in-the-works recently announced by Microsoft Corp., Netscape Communications Corp. and Firefly Network, Inc. Yet another effort, called Truste (pronounced "trustee"), is trying to come up with a way to ensure that sites adhere to the policies they post.

The World Wide Web Consortium demonstrated a P3 prototype during Federal Trade Commission (FTC) privacy hearings earlier this month. A version that commercial webmasters could use is probably six to 12 months away, according to Joseph Reagle Jr., a policy analyst for the consortium.

The various efforts have been launched in part to head off possible government moves to protect privacy in cyberspace. But not all consumer advocates are convinced that self-regulation will work.

Marc Rotenberg, director of the Electronic Privacy Information Center in Washington, said he was unnerved during FTC hearings when a direct marketing advocate "could not come up with a single example" of information about children that shouldn't be resold.

"We need to establish some government safeguards," Rotenberg said. "Privacy should be protected by law." □

. L. Bean's folksy Web site

NTINUED FROM PAGE 47

ars ago, the site began to offer line sales last November.

Bean, like many catalog comnies, went online partly to ntain costs. Paper and postage sts make mailing a print catag very costly, and the Internet a far less expensive way to reach customers.

For security, Bean uses Secure Sockets Layer, the Internet standard for encrypting information over the Internet.

ENOUGH SECURITY

Roberts said Bean is satisfied with the level of security now available for Internet transactions, although the company is investigating emerging technologies to further increase security, including the Secure Electronic Transaction specification for payment processing over the Internet. Bean uses IBM servers. It picked Big Blue partly because of customers' perception that IBM would be safe.

But security still worries Bean customer Tom Needham of Parma, Mich., who uses the Web site to search for campgrounds and request catalogs but not to make purchases.

"Although the Web is great for browsing, all my purchasing is done through snail mail," Needham said. "Although L. L. Bean is a very reputable company, I still have a problem with my card numbers floating out there."

Roberts said the Bean site is profitable, but he wouldn't provide specific revenue or cost figures. Although sales are small, costs to run the site are even smaller, he said.

Still, at Bean, as at many online catalogers, online sales are a tiny fraction of print sales and are likely to stay that way for a long time [CW, May 26]. Bean looks at the Internet as a long-term investment that might not become significant for decades.

NEVER CATCH ON

Retail analyst Alan Millstein, editor and publisher of the "Fashion Report," a newsletter in New York, said Internet clothing sales will never be significant.

"People like to touch and feel clothing, or at least be able to see it in a four-color catalog," Millstein said. "All these companies have hopes, but my prediction is that the Internet will come to nothing in the way of apparel."

Bean customer Bruce Van Houten of Windsor, Vt., agreed — at least for now. "I still find their paper catalogs easier to use and just plain more fun to look at," he said. "I am a systems administrator at a hospital and stare at this screen most of the day. I visit Web sites such as this out of curiosity but seldom use them." □

Taking in-house control

Initially, L. L. Bean outsourced the creation of its Web site to Boston-based consultants Strategic Interactive, but since then the company has been bringing the effort in-house, approximately doubling internal staffing of the Web site to about 30 people over the past six months, according to Steve Roberts, Bean's senior new-media analyst.

The company was satisfied with the work that the consultants were doing; it just wanted to maintain better control and to more easily reuse art and copy from the print catalog online.

Maintaining that connection is important to Bean.

Recently, the company launched an online feature called QuickShop, designed to streamline online shopping. While other online catalogs require users to find products online if that is where they will order them, the QuickShop feature allows Bean customers to look up an item in the print catalog and then go online and order it. It was designed for people who find online ordering more convenient than telephone, fax or mail but who still would rather have the experience of browsing through a paper catalog, Roberts said.

— Mitch Wagner

The Enterprise Network

LANs • WANs • Network Management

Briefs

Cheap switch

Intel Corp. in Santa Clara, Calif., last week slashed the price of its eight-port 10/100M bit/sec. switch by roughly 40%, from $4,995 to $2,995. Each port can support a 10M or 100M bit/sec. connection. Intel also makes 10/100M bit/sec. adapter cards that PCs need to connect to the switch ports.

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AOL to use 56K modems

AOL Networks, a subsidiary of America Online, Inc., announced last week that it will deploy 3Com Corp.'s U.S. Robotics X2 56K bit/sec. technology in the AOL network. To support access with X2 technology in its network, AOL will upgrade at least [illegible] cities by Aug. 31 and 80 more cities by the end of September. By year's end, approximately 65% of AOL's network will be based on 3Com/U.S. Robotics' Total Control remote access equipment.

Only about 10% of organizations trying to create a single, end-to-end TCP/IP network throughout their organization will succeed within the next five years. Most will retain segments using other protocols.

Source: Gartner Group, Inc., Stamford, Conn.

Tivoli feels urgent need for support

▸ *Company moves to ramp up TME 10 resources*

By Patrick Dryden

SELDOM DO IT vendors acknowledge their shortcomings, let alone take users to breakfast to explain their efforts to make good.

ENTERPRISE MANAGEMENT

Yet executives from Tivoli Systems, Inc. have gathered customers for penance and pancakes in five cities since the company's user conference last month.

Information systems managers feared the lack of resources would slow their multimillion-dollar implementations of tools from Tivoli, parent company IBM and vendor partners for managing distributed client/server networks [CW, May 19]. One IS team, for example, came to the conference to audition Tivoli speakers so they could snap up recognizable experts to bring home for staff training.

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The goal is to make users and prospective users "aware of the sophisticated resource requirements and what we're doing to provide them," he said.

CUTTING COSTS

The Tivoli Management Environment (TME 10) is a framework that integrates tools for controlling distributed clients, servers, networks and applications. Large organizations adopt TME 10 and other enterprise managers in the hopes that they eventually will cut overall management cost and complexity.

But implementing TME 10 demands experts (who are scarce), careful planning and a fat checkbook. Sound familiar?

"This is similar to SAP R/3 implementation," said Wayne Simmons, senior consultant for management tools at Ernst & Young.

Users are pressed for resources to achieve total enterprise management, Simmons said. Also, they must re-engineer their IS organization and processes around the chosen management platform, he said.

To feed the need for TME 10

Tivoli, page 57

TIVOLI TIDBITS

Tech tips

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TME is like implementing SAP R/3

Reuters Holdings adopted TME 10 last month to manage its global network and systems supporting 15,500 employees and customer sites. Tivoli's biggest sale to date exceeds $15 million. Large users such as Amoco Corp. expect TME 10 implementation to take nearly two years.

Enterprise nets gain flexibility

By Bob Wallace

A FLURRY of internetworking products announced last week were designed to give users more flexibility in managing change in their enterprise networks.

The products — which include everything from Gigabit Ethernet switches to remote access server add-ons — could give end users faster access to server farms and remote users faster access to the network at a lower price.

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"Before, the only choice was to use Cabletron's [higher-end] MMAC-Plus switch to provide ATM connectivity to smaller pockets of users. Bot that was expensive," said Steve Yantz, a telecommunications specialist at Fort Knox in Fort Knox, Ky. "We need to extend the reach of ATM to more broadly support high-speed applications such as distance learning, desktop video and warfare simulation."

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Products, page 59

Mobile users stay up-to-the-minute

▸ *Products offer data synchronization help*

By Mindy Blodgett

AS THE RANKS of road warriors grow and the tasks they must perform become more complex, remote data synchronization gets to be a bigger problem.

Vendors are scrambling to find ways to synchronize enterprise and remote databases, according to industry observers. But there are products available now.

STRATEGIC NEEDS

"Nowadays, there are many more strategic applications being performed on a mobile device," said Karen Scherberger, an analyst at Gartner Group, Inc. in Stamford, Conn. "So you have a complex distribution-of-data problem. The issue is, how do you enable the mobile worker to, say, write up orders from the field with up-to-date information from the corporate database without synchronization?"

SyncKit from Synchrologic, Inc. in Atlanta addresses that problem. SyncKit was designed to synchronize data in both directions between a server database and a database on a desktop or laptop that is occasionally connected. For example, a user could synchronize Sybase, Inc.'s SQL Anywhere database with an Oracle Corp. database, via a laptop.

Sales force automation vendors such as Brock International, Inc. in Atlanta and Sales Vision, Inc. in Charlotte, N.C., have licensed SyncKit technology for integration with their own products. Other vendors, such as Xcellenet, Inc. in Atlan-

Mobile users, page 57

SYNCKIT FEATURES

- Support for [illegible] databases to synchronize [illegible] vendors
- The ability to automatically resend files lost during communication
- A suite of administrative tools to allow users to diagnose problems remotely

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SYNCKIT FEATURES

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- **The ability to automatically resend files lost during communication**
- **A suite of administrative tools to allow users to diagnose problems remotely**

technology

You see 'em out in the field solving technical problems. They're the ones you call when you need someone with expertise to walk in and do what needs to be done. They're Microsoft Certified Professionals. They've passed performance based exams and continue to hone their relationship with Microsoft so they're always current on the latest developments in technology. No one knows the BackOffice family of products more thoroughly. Each and every MCP is an expert in one particular aspect of Microsoft technology while possessing sterling overall technological ability. You can access this expertise either by adding MCPs to your staff or by working with a Microsoft Solution Provider organization, where you'll find MCPs on staff. From planning and implementation to support, Microsoft Certified Professionals are proven performers in their field, ready to produce results when and where you need them. To find out more, visit this address: or call (800) 836-8282, Dept. B407.

[illegible]
wranglers.
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in a number of
technical areas
▼
Intranet
Database Design
Application
Development
Client/Server
Systems Integration
Applications Support
Internet
Microsoft
CERTIFIED PROFESSIONAL

Tivoli ups TME 10 resources

CONTINUED FROM PAGE 53

expertise, Tivoli officials have made changes in the following areas

- **Staffing:** Fifty more field service engineers will be trained, for a total of 200 by November The company just added 50 consultants to Tivoli Professional Services and is dedicating 40 consultants from IBM Global Services to TME 10
- **Telephone support:** The company opened a full-time call center June 2 for TME 10 users at (800) TIV-OLI8 On July 7, Tivoli will link it to the main IBM call center to unify and clarify help for Tivoli and IBM products and eliminate "ping-pong" support problems.
- **Trainers:** A formal program has been designed to provide on-site training for TME 10 operators, so users won't have to seek help from three Tivoli organizations that currently split responsibility for training.
- **Publications:** Forty-six "redbooks," or technical implementation guides, about TME 10 will be added to the 16 that are available now.

"It's good to hear Tivoli acknowledge the problem and take steps to correct it by hiring and training," said Richard Weiss, an architect for enterprise management systems at Charles Schwab & Co. in San Francisco.

Information technology vendors and IS groups face the same predicament, however. "Expertise is in short supply and high demand," he said

ENTERPRISE MANAGEMENT

While these catch-up efforts are valuable, they don't address the underlying problem that makes implementation so painful, said Ray Paquet, a research director at Gartner Group, Inc in Stamford, Conn

"Tivoli should be trying to make the software less complex instead of trying to train more experts," he said.

'COOKBOOKS' ON THE WAY

On this front, Tivoli will start building default configurations into TME 10 products so users can get running sooner, Lindelow said. Such streamlining is possible, because consultants are gaining real-world experience at user sites and compiling setup steps into "cookbooks."

By contrast, users of Unicenter TNG from Computer Associates International, Inc. report fewer start-up hassles. That management suite is self-contained, not a framework for integrating a best-of-breed collection of tools.

And those OpenView users who want to cover more than networks with tools from Hewlett-Packard Co won't come up short on support. HP has melded its network and systems management development groups and backed the OpenView suite with its 1,200-strong global consulting and integration service.

To catch up, Tivoli has shelved plans to offer a scaled-down version of TME 10 for smaller users. That package would reduce the "vast flexibility" causing TME 10's complexity, Lindelow said. "That has to wait until we fix the other problems for large users," he said

TME 10 can do so much that "it is its own worst enemy," Lindelow said. ☐

Mobile users get synchronized

CONTINUED FROM PAGE 53

ta, offer similar products. Large vendors such as Microsoft Corp. are expected to offer similar technology when the market gets large enough, according to Jack Gold, an analyst at Meta Group, Inc. in Boston.

"The need is definitely growing out there for this kind of tool kit," Gold said.

According to the Sales Automation Association in Kalamazoo, Mich., approximately 3.5 million U.S. salespeople are equipped with laptops.

Jared Daum, manager of business solutions development at Maersk, Inc., a shipping company in Madison, N.J., said his company at first tried to write its own synchronization code in order to supply its 200-person mobile sales force with updated shipping and sales information.

"But we had to rebuild the database once a week, and we still had the problem of folks needing to come in for a week or two every quarter to fill out forms," Daum said.

So Maersk turned to SyncKit. Daum wouldn't say what the implementation cost the company, but he said a cost/benefit analysis has shown that it will pay for itself in six months

Remote and mobile users now get incremental updates to their databases rather than a complete database exchange, which reduces the data flow 95%, Daum said.

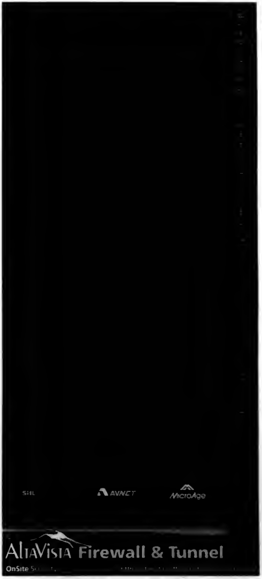
The product works with databases from many vendors that use the Open Database Connectivity data-transfer specification. SyncKit comes with a suite of tools to diagnose systems problems. It costs about $20,000 per server and $210 per user for a typical 200-person implementation.

Synchrologic's technology is based on a three-tier architecture that isolates the application and database from the synchronization and data sharing logic. ☐

S H O R T

Multisource access

Fulcrum Technologies, Inc. in Ottawa is shipping Fulcrum Knowledge Network, software that culls data from networked data sources using Fulcrum's client software, World Wide Web browsers or Microsoft Corp. Outlook and Exchange clients. Using the software, users can access data on Web servers, file systems, messaging servers and databases. The client/server software costs $400 per user.



Products boost flexibility

CONTINUED FROM PAGE 53

centrally located server farms.

Today, most companies use 100M bit/sec pipes to server farms, said Skip MacAskill, an analyst at Gartner Group, Inc. in Stamford, Conn. Gigabit Ethernet pipes offer 10 times more bandwidth, which is important as firms run more demanding applications on fewer servers.

Foundry's TurboIron Switch has four Gigabit Ethernet ports and can be equipped to support up to two more. The base system costs $11,995. The single- and dual-port expansion cards cost $2,495 and $3,995, respectively.

Foundry also announced the TurboIron Switching Router, which adds high-speed routing to the Gigabit Ethernet switch. It has the same number of ports and supports major routing protocols.

Deploying switches with built-in routing simplifies network administration by reducing the number of stand-alone devices that need to be managed.

It costs $15,995 and can be expanded with up to two extra ports. Both products will ship next month. Foundry plans eight- and 16-port Gigabit Ethernet switches and routing upgrades in the fourth quarter of this year.

■ **Cisco Systems, Inc.** in San Jose, Calif., announced asynchronous dial-up modules for its midrange 3600 remote access server that let users save money by supporting more end users without buying additional systems. Cisco has added 16- and 32-port units to the products, which had been available in only four- or eight-port configurations. Users that topped out with the lower-density modules had to buy more servers at anywhere from $1,800 to $4,800 apiece. The new modules can be added to all 3600 models.

Cisco also announced a module that lets users tie a 3600 remote access server to a Fast Ethernet backbone network, which is good news for Dave Meyer.

"Connecting the remote access server to a Fast Ethernet backbone is appealing because [the 100M bit/sec. technology] is widely used in building and because you don't need any intermediary equipment," said Meyer, director of the advanced networking technologies center at the University of Oregon in Eugene.

The 16- and 32-port modules will cost $2,600 and $4,600, respectively. They ship this month. The Fast Ethernet module is available now for $3,000. □

New Internetworking products

Vendor	Product	Benefit
Cabletron	**SmartCell ATM Switch Module**	**Extends ATM from backbone networks for less money**
Foundry	**TurboIron Switch, TurboIron Switching Router**	**Both products provide fatter pipes to server farms; TurboIron Switching Router also has built in high-speed routing**
Cisco	**3600 remote access server modules**	**Server supports for more remote dial-in users; can hook to Fast Ethernet LANs**

NEW PRODUCTS

BMC SOFTWARE, INC. has announced the Patrol Knowledge Module for NetWare, software that lets administrators view a wide range of Novell, Inc.'s NetWare server indicators.

According to the Houston company, the software monitors multiple file servers and more than 150 NetWare server parameters for proper settings.

Pricing starts at $4,500.

BMC Software
(713) 918-8800
www.bmc.com

TEKTRONIX, INC. has announced Spotlight Network VideoServer System, a network video streaming system that lets companies provide instant full-screen, full-motion video on demand for training and other purposes.

According to the Wilsonville, Ore., firm, the system includes a video server, a video encoder and a video browser plug-in. The server stores video streams and then delivers individual streams on demand or via a standard Internet Protocol multicast.

Pricing is based on the number of streams. A 30-stream system costs $45,000, and the video encoder costs $19,995.

Tektronix
(503) 627-2779
www.tek.com

ACCTON TECHNOLOGY CORP. has announced Cheetah PCI adapter, a Fast Ethernet adapter that delivers 100Base-TX connections.

According to the San Jose, Calif., company, the adapter is inexpensive enough to create a 100M bit/sec. workgroup at the cost of a 10M bit/sec. workgroup.

Cheetah PCI costs $59 for a single adapter.

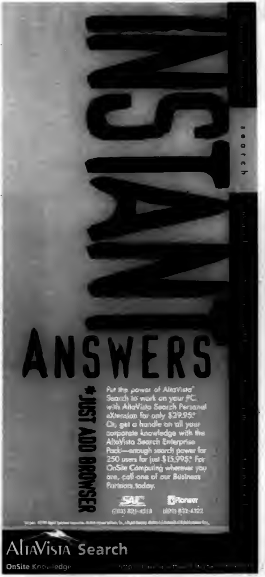
Accton Technology
(408) 452-4900
www.accton.com

LIEBERT CORP. has announced SiteNet Integrator Load Control Module (LCM) to integrate remote Uninterruptible Power Supply control, environmental monitoring and site security in Liebert's SiteNet Integrator.

According to the Columbus, Ohio, company, the LCM provides remote power management of connected equipment loads, allowing the network manager to control remote equipment through simple on/off commands or by programming the SiteNet Integrator to automatically respond to alarm conditions.

Pricing for the LCM is $825.

Liebert
(614) 888-0246
www.liebert.com



Products boost flexibility

CONTINUED FROM PAGE 53

centrally located server farms

Today, most companies use 100M bit/sec. pipes to server farms, said Skip MacAskill, an analyst at Gartner Group, Inc. in Stamford, Conn. Gigabit Ethernet pipes offer 10 times more bandwidth, which is important as firms run more demanding applications on fewer servers.

Foundry's TurboIron Switch has four Gigabit Ethernet ports and can be equipped to support up to two more. The base system costs $11,995. The single- and dual-port expansion cards cost $2,495 and $3,995, respectively.

Foundry also announced the TurboIron Switching Router, which adds high-speed routing to the Gigabit Ethernet switch. It has the same number of ports and supports major routing protocols.

Deploying switches with built-in routing simplifies network administration by reducing the number of stand-alone devices that need to be managed.

It costs $15,995 and can be expanded with up to two extra ports. Both products will ship next month. Foundry plans eight- and 16-port Gigabit Ethernet switches and routing upgrades in the fourth quarter of this year.

■ **Cisco Systems, Inc.** in San Jose, Calif., announced asynchronous dial-up modules for its midrange 3600 remote access server that let users save money by supporting more end users without buying additional systems. Cisco has added 16- and 32-port units to the products, which had been available in only four- or eight-port configurations. Users that topped out with the lower-density modules had to buy more servers at anywhere from $1,800 to $4,800 apiece. The new modules can be added to all 3600 models.

Cisco also announced a module that lets users tie a 3600 remote access server to a Fast Ethernet backbone network, which is good news for Dave Meyer.

"Connecting the remote access server to a Fast Ethernet backbone is appealing because [the 100M bit/sec. technology] is widely used in building and because you don't need any intermediary equipment," said Meyer, director of the advanced networking technologies center at the University of Oregon in Eugene.

The 16- and 32-port modules will cost $2,600 and $4,600, respectively. They ship this month. The Fast Ethernet module is available now for $3,000. ☐

New internetworking products

Vendor	Product	Benefit
Cabletron	SmartCell ATM Switch Module	Extends ATM from backbone networks for less money
Foundry	TurboIron Switch, TurboIron Switching Router	Both products provide fatter pipes to server farms; TurboIron Switching Router also has built in high-speed routing
Cisco	3600 remote access server modules	Server supports for more remote dial-in users; can hook to Fast Ethernet LANs

NEW PRODUCTS

BMC SOFTWARE, INC. has announced the Patrol Knowledge Module for NetWare, software that lets administrators view a wide range of Novell, Inc.'s NetWare server indicators.

According to the Houston company, the software monitors multiple file servers and more than 150 NetWare server parameters for proper settings.

Pricing starts at $4,500.

BMC Software
(713) 918-8800
www.bmc.com

TEKTRONIX, INC. has announced Spotlight Network VideoServer System, a network video streaming system that lets companies provide instant full-screen, full-motion video on demand for training and other purposes.

According to the Wilsonville, Ore., firm, the system includes a video server, a video encoder and a video browser plug-in. The server stores video streams and then delivers individual streams on demand or via a standard Internet Protocol multicast.

Pricing is based on the number of streams. A 30-stream system costs $45,000, and the video encoder costs $19,995.

Tektronix
(503) 627-2779
www.tek.com

ACCTON TECHNOLOGY CORP. has announced Cheetah PCI adapter, a Fast Ethernet adapter that delivers 100Base-TX connections.

According to the San Jose, Calif., company, the adapter is inexpensive enough to create a 100M bit/sec. workgroup at the cost of a 10M bit/sec. workgroup.

Cheetah PCI costs $59 for a single adapter.

Accton Technology
(408) 452-4900
www.accton.com

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Applets

Browsers

Components

Application Development on the Web

OMPUTERWORLD

Application Development in a State of Transition . . . Thanks to the Web

A few years ago, vendors of application development tools, like everyone else, started turning their attention to the Internet. What they came up with, mostly, were products that would let corporate developers create applications that employ a Web browser as a user interface. The idea was to give developers what they wanted: the ability to let users access internal and external applications using the same interface.

So far, most companies are using these Web-enabled versions of development tools to build external and internal Web sites. "Marketing is still the most important aspect of the 'Net," says Michael Howard, vice president and general manager of the Cactus division at Information Builders Inc. (IBI), a supplier of distributed processing middleware and 4GL technology in New York City.

One reason corporations have shied away from widespread deployment of applications with Web browser interfaces is that HTML, the programming language of the Internet, takes time to learn and can be difficult to use. The products on the market "are good, but you need time to learn them," says David Strom, who heads David Strom Inc., a consulting firm in Port Washington, N.Y., that specializes in Internet-related product testing. "You need pretty hefty programming experience to do anything. You need to go the extra mile to get a useful end-user interface."

Programmers can build applications that can be accessed by a Web browser. But these applications cannot offer the flexibility and degree of control of those that are operating system-driven, and are also missing familiar items such as buttons and pull-down menus.

Although most Web-enabled development tools aren't yet robust enough to build fully functional applications, they are rapidly being improved, and their current limitations could disappear once applications incorporating Java applets and Microsoft ActiveX components hit the market.

Still, if current Web-enabled development tools are mostly being used to build external and internal Web sites, at least they're ambitious Web sites. For instance, Time Inc. is using Sapphire/Web, a tool from Bluestone Software, Inc., Mt. Laurel, N.J., to build a Web site. Starting in September, people accessing the site will have access to about one-third of the 22 million images from the publisher's pictorial database. Eventually, more of the images, including those from other Time publi-

cations such as Fortune, People and Sports Illustrated, will be added to the Web site.

Until now, access to these images was limited primarily to stock image houses and graphic artists, and they had to rely on Time researchers to identify appropriate images from descriptions of subject area. The research could take two days. However, customers visiting the new Web site will be able to access images immediately and order them via a secure credit card transaction. They can then download them, get them on diskette or have them shipped as hard-copy prints.

Time Inc. chose Sapphire/Web because it had to migrate the pictorial database application off its in-house client/server system, which is accessible only to Time employees via a corporate network. To make its deadline, Time had to migrate the application to the

Component-based development to dominate

[illegible]

[illegible]

[illegible]

Internet without extensive recoding and writing of CGI (common gateway interface) scripts, and Sapphire/Web provided native connectivity between Time's HTML pages on the front-end and its Informix DBMS on the back-end. "That made it seem more like a traditional client/server application and less like the static HTML pages that you see on many Web sites," says Rich Grasso, project consultant with Time Inc.

The Bluestone tool offered two other advantages: It let Time access JPEG images stored as non-standard data types (for example, as binary large objects, or BLOBs), and read them from anywhere in memory, and its electronic commerce capabilities allow Time to handle credit card orders.

Although Time is not using the tool corporate-wide, it plans to deploy it in other applications, such as using it to bring an entire page of a magazine — photos and text — onto the Web, says Grasso. Current versions of Time magazines on the Web are text only.

Secure payment site

R.R. Donnelley Financial, part of the R.R. Donnelley publishing company, maintains a library of 50,000 documents for use by bond traders, financial service companies and municipal governments. The Hudson, Mass., company needed to create a site that offered secure payment processing, so users could subscribe for a time or download a particular document for a fee. To build the site, Donnelley is using Cold Fusion software from Allaire Corp. in Cambridge, Mass. Cold Fusion, a tool for building Web sites that automatically generate database queries, now supports secure payment processing using technology from CyberCash Inc., a supplier of electronic funds payment systems.

Donnelley also wanted to develop the payment application quickly. "Most commerce solutions use pre-set templates that are too restrictive," says Marianne Cormier, senior systems analyst at Donnelley. "Using Cold Fusion and CyberCash, we could develop the site specific to our needs and take advantage of Cold Fusion's rapid development capabilities. The tool allows us to interact with our database and build pages on the fly."

Users can now get to documents faster. Previously, they had to sort through a list of all documents for a given state. Now they can make queries based on multiple criteria and get to the one document they want.

Donnelley also used Cold Fusion to develop a service for secure delivery, editing and proofreading of financial documents on the Web. The service is designed to shave hours or even days off the time required for revising, approving and distributing documents.

NetExpress Technical White Paper

Internet Solutions For Business Applications

Executive Briefing

It takes a special skill to create industrial-strength applications. It requires developers to have a strong "technical" understanding of how mission critical systems are designed, developed and maintained along with a detailed understanding of a company's business processes. COBOL programmers have historically been able to merge these two skill-sets and have successfully developed and maintained many of the mainframe systems that businesses depend on throughout the world. Today, business systems are no longer restricted to the mainframe. The Internet, intranets and the world wide web have opened up a new world of opportunities to collect and provide access to information. But even with all this new technology, the basic skills necessary to develop and maintain mission-critical business systems remain the same. That's why Micro Focus has developed a programming environment that will enable COBOL programmers to exploit the Internet. The tools and technology discussed in this Executive Briefing will allow COBOL developers to use their existing skills to produce new systems or extend existing applications to harness the Internet and bring added value to any business.

Overview

Creating industrial-strength applications for the Internet requires the smooth integration of many technologies and skill sets. In the case of business applications, this typically means reusing existing business rules and data and enabling them for the Internet or intranet. The business rules are almost always written in COBOL.

Micro Focus has developed NetExpress to focus on providing COBOL programmers with a complete solution for "Bringing Business Applications to the Internet." NetExpress is a unique application development environment that builds on Micro Focus' traditional strengths in providing robust application development tools. NetExpress also includes exciting new features that will make it the best-of-breed tool for developing and deploying Internet-based applications.

Below are descriptions of some of the technology NetExpress brings to COBOL developers.

Extending COBOL to the Internet and Beyond

Micro Focus has added powerful extensions to the COBOL language that allows programmers to easily migrate existing applications to a web-based user interface. In addition, technologies built into NetExpress minimize the effort necessary for COBOL programmers to:

- Create new HTML pages
- Use ActiveX controls on HTML pages
- Automatically generate the server-side (CGI) code for new and existing applications
- Debug web-based applications
- Make use of the performance pr
Netscape NSAPI interfaces with
working CGI application
- Use Microsoft®'s Transaction Se
processing applications
- Scale to UNIX servers.

Technology Highlights

NetExpress includes an "External Fo
language to enable a program to acc
simple extension means that displayi
from these forms is as easy as using t
syntax familiar to COBOL programn
programmers do not need to know H
can be rearranged without having to

NetExpress also allows a programme
pages when the program is executed
uses the new EXEC HTML stateme
constructs to be included in a COBO
flexibility of server-side scripting wit
performance and ease-of-use COBO

Integrated Form Painting

The HTML/ActiveX form painter,
NetExpress, gives developers the ne
for an application. When used in co
outlined below, Form Designer give
creating the appropriate forms and s
to have an application become funct
output can be used by any web site a
a chosen web site when required.

Once the forms have been painted,
connect controls together and create
form. This is done using a point-and
matically generates the appropriate J
basic processing can be done on the
without requiring a round-trip to th

CGI, ISAPI and NSAPI Programmi

Unlike other languages, writing a C
COBOL is easy. If the higher perfor
Microsoft (ISAPI) API is needed, it i
directive. Applications created with
majority of UNIX platforms using t
Development Suite for UNIX.

ovided by the Microsoft ISAPI and
out any source code changes to a

rver™ to easily create transaction

rm" extension to the COBOL
pt or display HTML forms. This
g HTML forms and accepting data
he normal ACCEPT and DISPLAY
ners. This approach means that
TML and that the layout of forms
re-compile the application.

r to dynamically create HTML
by using Embedded HTML. This
nt to allow standard HTML
L application. This delivers all the
h the traditional power, compiled
L provides.

Form Designer, integrated into
essary tools to paint business forms
junction with some of the features
programmers a head-start in
erver-side COBOL code required
onal in minutes. Form Designer's
uthoring tool for incorporation into

Form Designer can be used to
event handlers for controls on the
-click user interface which auto-
avaScript code. This means that
client machine in the browser
server.

ng Made Easy

GI program with Micro Focus
mance of the Netscape (NSAPI) or
s as simple as changing a compiler
NetExpress can be hosted on the
e Micro Focus COBOL

By using Form Designer to design the appropriate input and output forms, users can define the COBOL format of any field on the HTML forms. A code generator is then automatically invoked and produces:

- Working-Storage definition of the fields
- EXEC HTML code to display the fields
- ACCEPT statements to retrieve data from the input fields.

You can have a working application within minutes that can be further refined with customer input.

Web Debugging Facilities

NetExpress provides an integrated web server for the programmer's personal machine. This allows programmers to work even while a production web server is not available to them. NetExpress also provides programmers with a unique "just-in-time" debugging environment for locating and correcting errors in web programs.

Tools for Migrating Existing COBOL Programs to the Internet

NetExpress' Form Express tool allows programmers to automatically generate a form, data conversion code and a CGI program based on a COBOL program's linkage-section. This user friendly, point-and-click utility allows developers to easily select the types of control that should be generated for each linkage-section item. With this tool, an existing application can be up and running with a browser interface in minutes.

Support for Microsoft Transaction Server

Microsoft Transaction Server is a component-based transaction processing system for Windows NT. Micro Focus' support for Transaction Server allows COBOL programmers to build scaleable servers using ActiveX technology. The integration of Microsoft Transaction Server and Micro Focus NetExpress means that COBOL programmers can leverage their skills and training to participate in the software component revolution that is taking place on the Internet.

Keeping Developers in sync with WebSync

Micro Focus has launched a revolutionary technical assistance site called WebSync. This site houses samples, technical papers, handy utilities, fixes and any other materials helpful to our users. The site will automatically e-mail registered users with regard to any changes in the content. An offline version is also available. WebSync is completely integrated into the NetExpress development environment.

Availability

NetExpress is generally available. Please contact Micro Focus sales offices or call **1-800-87-COBOL**. Additional information can be found at the Micro Focus web site **http://www.microfocus.com/NetExpress.**

MICRO FOCUS

Multiplexer

Host access

Although many companies currently deploy mission-critical applications to the Intranet, few have brought their core applications to the Web. But that is starting to happen, according to Nick Evans, a manager with the National Internet Practice of Coopers & Lybrand LLP in Dallas. This year, he says, "there will be a lot more serious business-to-business applications using Internet technology that is beyond just a Web site." Or as Lew Tucker, director of ISV and developer relations for JavaSoft puts it, "We're now in the era of the transformation of the Web from publishing medium to one of application deployment."

For that transformation to take place, Web developers are going to require host access, since 70% of all the "useful" data in the world still resides on host computers. And that will happen, because many observers say the next trend in Internet application development will be using a Web browser to access legacy applications.

But there will be problems. "Core applications are traditionally client/server applications, and fall within the realm of the IT department," says Jennifer Hetrick, PowerBuilder product marketing manager at Sybase. "Most Web servers were set up by marketing people for distributing marketing information." As the page-oriented Web comes together with the transaction-oriented applications within a business, it is going to make sense to integrate the Web server with application logic. But, she notes, "developers aren't always sure how to get to Web clients quickly and easily."

Companies are working on the problem by coming up with products that give Web developers flexible access to host data without compromising the host environment, as well as products that allow developers to recreate host applications for the Web.

Last year, IBI unveiled its Cactus client/server development system, which lets developers connect mainframe applications with servers, user desktops and even the Web. The consensus view is that it's impossible to build mission-critical applications on the Web today, because HTTP protocols and servers are neither robust nor scalable enough. But according to IBI's Howard, "it depends on your definition of mission-critical. Today you can still do very important types of applications that need to be up 24 x 7 and have very good performance."

Another solution, from Intelligent Environments Inc., involves a version of the Burlington, Mass., firm's Amazon tool to Java developers so they can build Web applications that link legacy systems. Using Amazon, developers will be able to create applications using legacy data from Unix, AS/400 and IBM mainframe systems. They also will be able to publish an organization's business rules corporate-wide using JavaBeans.

When it comes to moving legacy applications to the 'Net, data access will be a crucial component, according to Igor Kruglyak, marketing product manager for the distributed computing team at Micro Focus, a supplier of software tools based in Palo Alto. "The essential component [of data access] will be middleware enablament," he says. To facilitate data access, Micro Focus has implamented OpenESQL, which allows embedded SQL componants to access a variety of databases via ODBC against diffarent code bases.

When it comes to application developmant on the Web, Micro Focus has two credos. 1) Any Cobol developer should be able to develop and deploy for the Internet. 2) Any component that a developer is not familiar with should be generated automatically.

To fulfill this vision, Micro Focus offers NetExpress, an integrated development environment for creating distributed applications. NetExpress combines the company's Object Cobol compiler with a set of tools for developing applications targeted at graphical PC workstations, distributed computing environments and the Internet.

Says Kruglyak, "The developer does not have to know about the Internet because

NetExpress creates a CGI program in Cobol that can also interface with the customer's existing business logic. This gives developers the option of developing new Internet applications or bringing existing legacy applications to the Internet."

Development options growing

In the next two years, as activity in the development arena shifts towards the creation of applets that can execute on clients, as well as browsers for database reading and writing, for linking to corporate application servers and for allowing transaction-based applications, developers will find themselves juggling more and more technology options.

For many developers, one of their main options is Java. Since its introduction, Java has blossomed from a Web development tool into a full-fledged programming language — one particularly attractive to applications developers because its cross-platform capabilities, database connectivity and component architecture allows them to write real applications that are downloaded on a Web page. Developers adore Java's cross-platform capabilities, since it cuts their development time significantly.

However, one drawback is that not every Web browser on the market supports the same version of Java, making them incompatible. "Not enough browsers support Java, and those that do don't support all of Java's functions now," says consultant Strom. He recommends that users to settle on a particular version of one browser and use that as a base to build application interfaces.

Nearly every vendor is formulating a Java strategy; a few are making it the crux of their development strategies. More typical, however, is Sybase, whose Powersoft division offers products for whatever platform a developer is comfortable with, be that C++ or Java. Its PowerJ product, for Java applet and application development, is now in beta.

Less typical is Micro Focus. Because its Web strategy is server-centric, the company currently has no plans to provide Java tools. "Java is a hot language for the client side," says Kruglyak. "For our purposes, though, we have provided mixed language support and HTML." The company also offers Cobol as a server-side scripting language for the Internet, so that HTML and Cobol can be deployed as one unit.

Other companies are figuring out how much weight to throw behind Java and ActiveX. Although some companies have aligned themselves behind either Microsoft or Sun, the idea, says IBI's Howard, is "to keep in both camps as best you can."

34,722 hpm*
*Hits per Minute
THE NETWORK IS THE COMPUTER
Sun

Software

Client/Server • Development • Operating Systems

Briefs

Broadbase data marts

Broadbase Information Systems, Inc. in San Mateo, Calif., this week will announce plans to deliver an integrated set of software for building, managing and querying Windows NT-based data marts. The Broadbase Server is scheduled to ship in the third quarter and targets departments and medium-size companies. Pricing wasn't available.

[illegible] middleware

[illegible] Corp. in Portland, Ore., this week [illegible] introduce a release of its Cypress distributed transaction [illegible] with expanded [illegible] support. Versions [illegible] on Hewlett-Packard Co. and [illegible] Microsystems, Inc. servers. It already supports Windows NT and IBM Unix [illegible]. Shipments are scheduled for August.

Alpha Year 2000 tool

Digital [illegible] Corp. and [illegible] Ltd. have [illegible] an agreement in which [illegible] will use the [illegible] automated year 2000 readiness tool on Digital systems. The tool will help Digital reduce the cost of analyzing and converting customers' [illegible] programs for year 2000 compliance. The [illegible] Digital Tool Suite will run on Digital's Alpha systems under Digital Unix.

All the data that fits

Worldwide storage capacity of nonmainframe databases

1996

Unix servers: 155P bytes
PC servers: 6P bytes

1997*

Unix servers: 277P bytes
PC servers: 14P bytes

1998*

Unix servers: 450P bytes
PC servers: 46P bytes

(1 petabyte = 1,000T bytes)

*Projected

Base: 288 North American user sites with a combined total of 2,861 database servers

Source: Strategic Research Corp., Santa Barbara, Calif.

IBM plan builds on Java

▸ *Virtual machine may boost Java acceptance*

By Sharon Gaudin

IBM'S UNIVERSAL VIRTUAL MACHINE

- Based on Java technology, with JavaBeans as the component model
- Designed to run Java, Smalltalk and Basic
- Engineers are considering supporting Cobol and C++
- 18-month rollout period starts in the fall

USERS AND ANALYSTS said IBM's new Universal Virtual Machine (UVM) should increase the number of developers who use Java rather than detract from the 2-year-old development language.

IBM officials confirmed earlier this month that the company is designing a UVM that will let developers use languages other than Java to build platform-independent applications. UVM, which is expected in beta this fall, will let users of IBM's VisualAge development tools for Java, Basic and Smalltalk write applications that run on multiple platforms [CW, June 16].

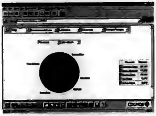
This is the first time that Java, which gained its market momentum because of its cross-platform capabilities, will have company in that arena. But several users and analysts said giving Java a little company will only make it more popular.

Jean-Pierre Cabanie, computer support manager at Philips Microwave, a division of Philips Semiconductors in Limeil, France, said he can't satisfy all

Java, page 62

Users see limits of Web data tools

By Craig Stedman



Cognos' PowerPlay Web Server Edition provides about 80% of the analysis and reporting features of the original desktop version

NEW WEB-BASED versions of desktop data analysis tools should make it less painful to extend them to distributed users. But they can't completely replace the full PC client releases at this point.

Archrivals Cognos, Inc. and Business Objects S.A. are leaving some key capabilities out of their first products that let users run query and analysis applications from World Wide Web browsers. As a result, even early adopters of the server-based tools plan to keep using the desktop versions as well.

For example, the Naval Center for Cost Analysis plans to use Business Objects' WebIntelligence software to more than double its 200-user installation of the company's tools. The server-based approach "just eliminates all the requirements" for loading and supporting software at each PC, said Commander William Mickler, decision-support program manager at the U.S. Navy unit in Arlington, Va.

But for now, a lack of charting and drill-down capabilities in WebIntelligence will keep the center from replacing the more feature-rich desktop clients that current Business Objects users rely on. "Once people start learning to use something, you can't take it away," Mickler said.

Users, page 63

Organizer stands alone, works with others

By Lisa Picarille

ATTEMPTING TO compete in the Microsoft Office-dominated suite market, Lotus Development Corp. last week delivered a revamped information management application that offers group calendaring and scheduling.

The Organizer 97 GS program is an updated version of Lotus' personal information manager, which lets users schedule appointments, manage and track to-do lists, maintain address lists and manage contacts. New features include facilities to create links to World Wide Web sites and a combined calendar view that lets users view up to 15 calendars simultaneously for collaborative management of schedules.

Observers said Organizer 97 GS is a direct response to Microsoft Corp.'s desktop information management product, Outlook,

Organizer, page 63

OPERATING SYSTEMS

Sun offers Solaris cafeteria

By Jaikumar Vijayan

CALL IT operating system a la carte.

Users of Sun Microsystems, Inc.'s Solaris software soon will be able to pick and choose only the features they need for their application environments because of a new modular delivery strategy for the operating system.

The recently announced Solaris 2.6 will serve as a foundation platform for the new strategy. Over the next few months, Mountain View, Calif.-based Sun will deliver a range of market-specific modules, or "feature sets," that users can add to the baseline platform to make it customized to their environments.

The idea is to let users pay only for the features they use and only when they need them.

For example, on the server side, Sun is developing an intranet application module, a module for Internet service providers and another module for enterprise-class shops. A Power Desktop feature set that in-

Solaris, page 62

Sun's Solaris road map:

Second half 1997

- Web-based management
- Web-based documentation
- 64-bit file support
- Cluster application catalog
- Intranet feature set
- Enterprise feature set

1998

- Native Java platform
- Full 64-bit applications
- Unlimited Internet address support
- Single system image
- Internet service provider feature set

Software

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Tactica middleware

Tactica Corp. in Portland, Ore., this week will introduce a release of its Caprera distributed transaction middleware with expanded Unix support. Version 2.3 runs on Hewlett-Packard Co. and Sun Microsystems, Inc. servers. It already supports Windows NT and IBM Unix boxes. Shipments are scheduled for August.

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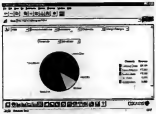

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NEW WEB-BASED versions of desktop data analysis tools should make it less painful to extend them to distributed users. But they can't completely replace the full PC client releases at this point

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For example, the Naval Center for Cost Analysis plans to use Business Objects' WebIntelligence software to more than double its 200-user installation of the company's tools. The server-based approach "just eliminates all the requirements" for loading and supporting software at each PC, said Commander William Mickler, decision-support program manager at the U.S. Navy unit in Arlington, Va.

But for now, a lack of charting and drill-down capabilities in WebIntelligence will keep the center from replacing the more feature-rich desktop clients that current Business Objects users rely on. "Once people start learning to use something, you can't take it away," Mickler said.

Users, page 63

Organizer stands alone, works with others

By Lisa Picarille

ATTEMPTING TO compete in the Microsoft Office-dominated suite market, Lotus Development Corp. last week delivered a revamped information management application that offers group calendaring and scheduling.

The Organizer 97 GS program is an updated version of Lotus' personal information manager, which lets users schedule appointments, manage and track to-do lists, maintain address lists and manage contacts. New features include facilities to create links to World Wide Web sites and a combined calendar view that lets users view up to 15 calendars simultaneously for collaborative management of schedules.

Observers said Organizer 97 GS is a direct response to Microsoft Corp.'s desktop information management product, Outlook,

Organizer, page 63

OPERATING SYSTEMS

Sun offers Solaris cafeteria

By Jaikumar Vijayan

CALL IT operating system a la carte.

Users of Sun Microsystems, Inc.'s Solaris software soon will be able to pick and choose only the features they need for their application environments because of a new modular delivery strategy for the operating system.

The recently announced Solaris 2.6 will serve as a foundation platform for the new strategy. Over the next few months, Mountain View, Calif.-based Sun will deliver a range of market-specific modules, or "feature sets," that users can add to the baseline platform to make it customized to their environments.

The idea is to let users pay only for the features they use and only when they need them.

For example, on the server side, Sun is developing an intranet application module, a module for Internet service providers and another module for enterprise-class shops. A Power Desktop feature set that in-

Solaris, page 62

Sun's Solaris road map:

Second half 1997

- **Web-based management**
- **Web-based documentation**
- **64-bit file support**
- **Cluster application catalog**
- **Intranet feature set**
- **Enterprise feature set**

1998

- **Native Java platform**
- **Full 64-bit applications**
- **Unlimited Internet address support**
- **Single system image**
- **Internet service provider feature set** →

Java

CONTINUED FROM PAGE 61

the needs of his users with one development language.

"I need VisualAge for Basic to write applications that allow me to process in my DB2 [database] server. I cannot use Java for everything. I may be able to use Java for part and Basic for another part. If I can write cross-platform with Basic, too, then I could use both," Cabanie said.

A virtual machine helps translate an application's language into code that an operating system can understand. Sun Microsystems., Inc.'s Java Virtual Machine translates Java code into a language understood by various operating systems.

UVM is being designed to translate Smalltalk, Basic and Java coding to support six operating systems: IBM's AIX and OS/2, Sun's Solaris, Hewlett-Packard Co.'s HP-UX and Microsoft Corp.'s Windows NT and Windows 95.

Robert LeBlanc, director of IBM's Toronto laboratory, said the company is building its virtual machine using Java technology.

LeBlanc said UVM will support JavaBeans, a Java-based architecture that enables Java applets and other components to communicate with one another.

LeBlanc said UVM is "building on what Java has brought to the market. We're trying to enable customers to integrate what they've written in Smalltalk or Basic with Java."

Joseph Feiman, manager of advanced technology at American Greetings, Inc. in Cleveland, said having one virtual machine that can handle different languages will enable his Java developers to work more closely with his other developers.

"Now I'll have to have a team of Smalltalk programmers and a team writing Java, and they're working together. Without this UVM, they would not be able to do that easily," Feiman said.

Karen Boucher, director of The Standish Group International, Inc. in Dennis, Mass., said UVM is "probably the first of many introductions that will expand on the concept of Java and the independence of write-once and run-anywhere."

"If you can take the best parts of Java and expand on that and make it accessible to more people, it helps the whole cross-platform push," she said. □

Solaris

CONTINUED FROM PAGE 61

cludes a built-in World Wide Web browser and high-availability support will be available with Solaris 2.6 in August.

"It is a great approach. You can custom build your operating system environment this way," said David Rae, a systems architect at Norwest Mortgage, Inc. in Des Moines, Iowa.

"Before, you had to buy the entire thing whether you wanted everything on it or not. Now you can buy components. That could make things cheaper," said Chris York, a technology manager at The Chase Manhattan Bank Corp. in New York. Both companies are beta users of Solaris 2.6.

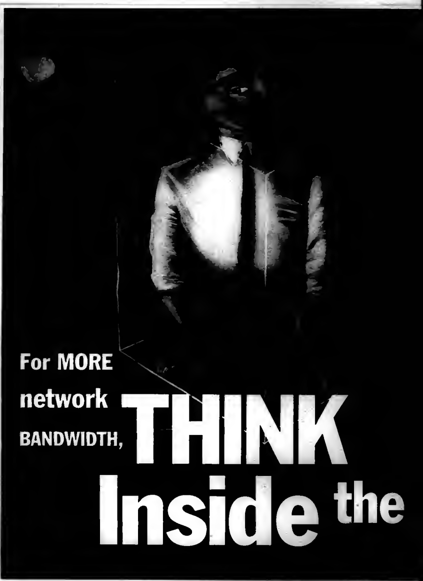
As part of its new delivery and packaging scheme, Sun is introducing a two-year subscription-based pricing plan for Solaris. Under the plan, users will pay a subscription charge up front and will get all upgrades and patches automatically during the next two years.

For example, users who become subscribers under the new plan will automatically get upgraded to Solaris 2.6 when it becomes available in August, Sun officials said.

Subscriptions start at $129 per desktop. On the server side, Sun is charging $695 for servers with an unlimited number of users under an introductory offer that expires June 30.

"We basically wanted to get away from the 'one size fits all' approach to delivering operating systems," said a Sun spokesman.

Sun officials didn't say how much the custom modules will cost, but they said users will have to pay separately for each module as it becomes available. □



Organizer

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which shipped with Office 97 in January.

But unlike Outlook, which requires Office 97 to use and Microsoft Exchange to get workgroup and messaging benefits, Organizer 97 GS will be available as a stand-alone product. It also will come as part of Lotus' SmartSuite group of productivity applications.

As a stand-alone application, Organizer supports VCard and VCalendar, the Internet Mail Consortium's standards for electronic business cards and appointments.

Organizer 97 GS also can be deployed as an enterprise application. By storing its data in the mail file of Notes 4.5, Organizer 97 GS uses the group scheduling and mobile support of the Domino Server to let users schedule meetings interactively with Organizer 2.x, Notes 4.5 and other Organizer 97 GS users from within the Organizer interface.

Adam Slagle, an Organizer 97 GS beta tester, said he liked the product's flexibility. "Now we can use a variety of front ends to the same calendaring and scheduling system," said Slagle, a senior consultant at Norcross, Ga.-based GE Capital IT Solutions, a division of General Electric Co. "Users can pick whatever front end, Organizer or Notes, they feel more comfortable using, which makes it easier to get everyone to use the system," he said.

Organizer 97 GS costs $79. Registered Organizer 97 users can upgrade to Organizer 97 GS for a $15 shipping and handling charge. Users of versions 1.x and 2.x can upgrade for $49. □

Users see the limits of Web-based data tools

CONTINUED FROM PAGE 61

The desktop tools are used by internal analysts who track the costs of operating the Navy's ships, planes and weapons. By contrast, WebIntelligence will be given to external Navy and government users whose principal need is straightforward querying and reporting, Mickler said.

Business Objects and Cognos, the two leading vendors of desktop data analysis tools, both announced Web-based versions of their software this month [CW, June 9]. The products run entirely on servers, which leaves nothing to be installed at the client end.

Paris-based Business Objects also didn't put its data mining functionality into WebIntelligence, which is starting beta tests now and is due to ship by year's end. The software mixes query and online analytical processing (OLAP) capabilities and can be spread across multiple servers for scaling purposes.

Meanwhile, Cognos left out of the Web version of its PowerPlay OLAP tool the ability to build new calculations on the fly and other advanced features. That tool is being released this month on Windows NT. The Ottawa-based company also doesn't plan to have its companion Impromptu query tool ready for the Web until late this year.

Cognos and Business Objects split about 70% of the desktop decision-support market between them, according to The Yankee Group in Boston.

Zurich Insurance Co., the U.S. subsidiary of Switzerland-based Zurich Group, plans to use WebIntelligence to make risk-management reports available to 500 field workers and customers. Reports that now go out on tapes with month-old information will be posted online and updated daily, said Frank Colletti, systems manager of the national accounts division at the Schaumberg, Ill., company.

But the 25 users who create reports and do heavy-duty analysis with Business Objects' namesake desktop software will likely stick with that for performance and data slicing-and-dicing reasons. "I have a feeling there are always going to be fat-client users here," Colletti said. □

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Briefs

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Servers based on the chip, which Intel is developing with Hewlett-Packard Co., will support Unix and Windows NT operating systems. Hitachi expects to ship a system with the first release of Merced, which is scheduled to be launched in 1999.

Timberwolf for PCs

Storage Technology Corp. last week announced a new model of its Timberwolf tape storage systems for PC LANs. The 9730, which will ship this summer, will hold up to 2.1T bytes of compressed data and will cost up to $90,000 for a 30-cartridge system.

StorageTek, in Louisville, Colo., is the leader in high-end tape storage systems and robotics.

RAID revenue rises

Revenue for all types of redundant array storage systems should hit about $15 billion this year, up from $10 billion in 1995, according to Strategic Research Corp. in Santa Barbara, Calif. Total RAID revenue could approach $25 billion in 2000, the consulting firm said. The largest growth in revenue will come from high-performance RAID systems, followed by midrange systems and PCs.

UNTAMED UNIX

Q1 1997 worldwide workstation shipments by operating system

Unix	195,442
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Total	259,612

Source: Dataquest, San Jose, Calif.

'You can't have that'

▸ *Managers battle users who want new gadgets*

By April Jacobs

WEARY DESKTOP IS managers not only have to manage more technology than ever, but also must fight off users who think they need every new gadget.

Adding to the usual plethora of desktop configurations — with all the bells and whistles — are new systems, many of which were designed to reduce the cost of owning PCs and increase productivity.

They include the NetPC, a locked-down PC minus a floppy disk drive or CD-ROM drive; handheld computers; and network computers, desktops that look like PCs but do all their application work from servers.

IS managers face an array of choices for end-user devices

Device	Function
Handheld computers	For mobile users to access E-mail, calendaring and limited network connectivity.
Personal workstations	For high-end graphics and power users, including engineers and financial types.
NetPCs	For users running a few applications. Provides tighter security than PCs because the box is locked down to prevent users from adding software.
Network computers	For former terminal users, limited task users or users of Internet/intranet applications. Server-centric network computers are low-cost boxes that access data at the server level and allow for central management of applications.

USERS' REQUESTS

Vincent Malitto, manager of information technology architecture at Praxair Chemicals, Inc. in Danbury, Conn., said keeping track of the devices and technology hitting the market isn't his biggest worry.

More the problem, he said, is explaining to users that not every new device is necessary. 'They see these announcements, and they say, 'I want that!' We have to explain to them, 'Yes, it's cute, but the keyboard is too small for your fingers or it doesn't have enough memory'... It's hard to get that message through to the users sometimes," Malitto said.

"We've had several hundred requests for handhelds," said Dave Quady, a senior systems engineer at Norwest Corp., a mortgage and financial services company based in Minneapolis. "But we can only give those people limited support, so we have to rely on the vendors for those people much more."

Quady said he has been looking at NetPCs, but he has also received pitches for network computers and personal workstations aimed at engineering and higher-end financial applications.

That is a new business area,

Managers protect, page 68

Removable storage devices have design group Jaz-zed up

By Matt Hamblen
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IT'S HARD FOR the artists and designers at fast-paced Landor Associates to imagine how they would work without the flexibility of removable desktop storage devices.

It takes months of research, analysis and computer-aided design to develop a name and logo for a global client such as Lucent Technologies, Inc. Most jobs require constant communication between the artist and the client. And the creative teams often produce several drafts of artwork for a package cover or corporate sign before a winning design comes to life.

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And those users face demanding deadlines, which require efficient, reliable storage and backup that they can control at their desktops, said Rob Pomon, a technology specialist at Landor. "We typically have several emergencies a day," he said, including PCs that crash for a variety of reasons.

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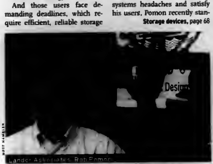
Storage devices, page 68



MATT HAMBLEN

Using a standard removable hard drive means a help desk worker can bypass a troublesome Macintosh or PC

COST SAVINGS

Small mainframes make big impact

By Tim Ouellette

MAINFRAME VENDORS are cranking up the high ends of their lines, but some users think smaller is better.

Users testing a new breed of "small mainframes" from IBM and Commercial Data Servers, Inc. (CDS) said they are a great option for efforts such as year 2000 testing, application development or retaining a mainframe presence in a shop that is moving to distributed servers.

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For example, Rory Dowler, supervisor of MIS operations at Ottawa Hydro, wants to get off his aging IBM 4381-91E mainframe to prepare properly for the year 2000.

But he said moving to a used machine or Unix server wasn't the answer because maintenance and labor costs would have been much higher.

"We have a date with the year 2000 that we can't break," Dowler said. "I can't afford not to go to [IBM's] Multiprise, because the alternative is too expensive."

Analysts have given the machines high marks for extending the breadth of the S/390 mainframe line and giving users more choice in how to allocate mainframe resources.

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Small mainframes, page 68

Small mainframes make a big impact

CONTINUED FROM PAGE 67

been pointed toward traditional mainframes and told to deal with the extra capacity — or buy a used system.

But there are more options today. IBM recently added new models and features to its Multiprise 2000 line (see chart).

And CDS, a Sunnyvale, Calif., start-up founded by Gene Amdahl, has started shipping its new CDS104 machine [CW, June 9]. Amdahl is the founder of mainframe maker and IBM rival Amdahl Corp.

CDS104 and Multiprise both provide an internal disk subsystem; can come with the latest versions of the OS/390, VM or VSE operating systems installed; and include adapters that let users hook the mainframe directly to a network without cumbersome gateways.

"We are using [the CDS104] as a mainframe replacement," said Stan King, a manager at Information Technologies Co. in Falls Church, Va., an early tester of the CDS104, for its own use. "The cost to us was a fraction of going to a larger CMOS or used box." And the Multiprise even packs more punch than some of the older, water-cooled models.

A Multiprise helped open wide a limited batch window at the Massachusetts Medical Society, which publishes the *New England Journal of Medicine*. "We had just about run our old mainframe into the ground," said Terry Spaulding, manager of technical support at the Waltham, Mass.-based organization. "The Multiprise 2000 cut our run times by 50% and let us do year 2000 testing, too."

And the Multiprise has closer ties to IBM's regular mainframes than users might think, given that the small mainframes begin at about 3 MIPS, whereas IBM's largest uniprocessor mainframe now reaches 63 MIPS.

By next year, users of the higher-end Multiprise models will be able to upgrade directly to IBM's G3 and G4 line of regular CMOS mainframes, thus avoiding the cost of putting a completely new machine on the accounting books. ☐

EYES ON THE MULTIPRISE

Additions to IBM's Multiprise 2000 line of "small mainframes"

- **Fast write to the internal disk subsystem, which speeds batch processing**
- **Logical partitions to share all data in the internal disk subsystem**
- **High-end multiprocessor models**
- **Highest-end Multiprise will upgrade directly to IBM's G3 or G4 mainframes; cheaper than treating the exchange as a new purchase**

Managers protect against gadget-itis

CONTINUED FROM PAGE 67

for traditional desktop PC vendors such as Dell Computer Corp. in Round Rock, Texas, and Houston-based Compaq Computer Corp., which are trying to offer more variety to their customers.

"I think there really is a huge number of choices out there, and with Intel turning chips out faster than they ever have, our jobs are very difficult," Quady said.

UPGRADE CONCERN

William Treloar, manager of information systems at Carpenters Benefit Funds in New York, said he hasn't seen an overwhelming demand for many of the latest gadgets.

But he said he finds it harder to keep track of the "product of the week."

Treloar said he is more concerned about upgrading his operating systems to a Windows NT environment.

He said that better management tools should make it easier to implement a standard desktop configuration.

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That is what Microsoft Corp. is hoping users will latch on to as it pitches its Zero Administration for Windows tools, which are the basis for managed PCs and the NetPC.

It is also what analysts are advising their clients take care of first — putting management tools in place, whether from Microsoft or some other vendor, before users latch on to newer hardware.

Chris Goodhue, an analyst at Gartner Group, Inc. in Stamford, Conn., said he advises clients to ignore the hype of hardware. Instead, he tells them, get management under control first. ☐

Senior writer Mindy Blodgett contributed to this story.

Storage devices Jaz up company

CONTINUED FROM PAGE 67

dardized the 175 workers at the San Francisco headquarters on Jaz drives by Iomega Corp. in Roy, Utah. The Jaz drives, which have 1G-byte capacity hard disks, are external storage devices for PCs and Macintoshes.

A walk through Landor's offices reveals that nearly every desktop has 10 or more Jaz disks. The disks usually contain works in progress for a variety of clients, including software boxes for Microsoft Corp. and a logo design for Federal Express Corp. An example of the firm's work for FedEx includes the idea to shorten the company's name to FedEx; the company's tagline, "The World on Time"; and the incorporation of a hidden arrow in the FedEx name to connote movement.

From the IS point of view, using a standard removable hard drive means a help desk worker can bypass a troublesome Macintosh or PC, or quickly update a machine with data on the Jaz disk, Pomon said. "We haven't quantified how much money it saves us, but you can imagine how quick it is to detach a removable drive from a bad PC instead of trying to download from that PC's hard drive," he said.

More important is how the devices satisfy Landor's end users.

Catherine Rude, who helps create packaging designs for consumer products such as beer bottles and cereal boxes, said she lost a year's worth of work two years ago because of a corrupt tape casette from a competitor. The bad experience has lingered. "I do go back to that [drive] if a client needs me to, but I mainly use Jaz," Rude said.

In addition to archiving work, the capacity on the Jaz drive is helpful because it lets users create and store many large files. One package design can produce 200M bytes of data. And if a client or a co-worker needs to see the work, it is portable, Rude said.

"I'd be at a loss if weren't for removable media," said Chris Jones, who helps Landor's clients build interactive World Wide Web sites. "With what I do, there's a tremendous amount of manipulation of files."

Final work at Landor is often backed up on a network server and put on a CD. Each user is expected to do backup at his own desktop, which tends to work well with technically savvy users who understand how important backup can be, Pomon and Parkinson said. Keeping storage at the desktop also reduces network traffic, they said.

Landor hopes to eventually standardize on a common electronic-mail system with its advertising partners that will let the company transfer files quickly to clients rather than have to download a file to a Zip disk or other format. Several obstacles to that plan include clients' concern about Internet security and Landor's concerns about possibly losing a company secret to a competitor, Landor officials said.

BACK IT UP

But even with Internet file transfer, "we'd still need convenient backup," Jones said.

Dennis Casey, an analyst at Strategic Research Corp. in Santa Barbara, Calif., said there is a real advantage at Landor for updating PCs with removable drives. But he said he doesn't see how the IS team can ensure backup. "Most administrators want more control over backup," he said.

Landor officials said they feel end users are careful enough about backing up work in progress, and have developed a strict security policy for workers' disks and other data storage products.

Landor systems administrators also may look at StorPoint HD, a device from Axis Communications, Inc. in Lund, Sweden, that allows Jaz drives to be attached to a workgroup network [CW, June 16]. ☐

NEW PRODUCTS

DAGAZ TECHNOLOGIES, INC. has announced the JERA 2120 Advanced Digital Subscriber Line Access Multiplexer for broadband multimedia networking.

According to the Bridgewater, N.J., company, the JERA 2120 delivers data, voice and video services up to three miles from a central office.

It was designed partly to make high-speed Internet data accessible to thousands of subscribers, so subscribers don't have to interrupt telephone service.

Pricing for the JERA 2120 starts at $130,000.

Dagaz Technologies
(800) 724-0476
www.dagaztech.com

LEK TECHNOLOGIES, INC. has announced SpeedPro, a jumperless PC and motherboard.

The base SpeedPro PC includes a Cyrix Corp. 166M bit/sec. microprocessor with a 2G-byte hard drive and a 16-speed internal CD-ROM drive.

The SpeedPro motherboard features 512K bytes of pipeline burst cache, with support for two high-speed serial ports, one parallel port and one floppy disk port.

Pricing for the base PC starts at $1,499; pricing for the motherboard only starts at $135.

Lek Technologies
(806) 622-3313
www.lektech.com

DATA WAREHOUSING
Great Debate

TALES OF TRIAL AND ERROR

from the front lines of data warehousing are sobering by any measure. The good news is that the user above still managed to realize substantial benefits despite the seven mistakes. The mistakes occurred over a number of years and several were ultimately deployed as what we identify today as data marts.

But not every firm investigating a data warehouse may be as lucky. Today, there are many more choices for a company looking at a data warehouse . . . and a much smaller corridor of allowable error for the selection of equipment and technology. This is because not only are more companies offering data warehouse tools, but also because user resources (people, time and money) have never been stretched thinner.

The Standish Group recently initiated a primary research effort to help subscribers to its COMPASS planning and strategy service determine how best to select and deploy data warehousing technology. This effort, called Project Explore looked at 60 data warehouses, which supported more than 16,000 knowledge workers. Half were provincial warehouses and half merchant warehouses.

Provincial data warehouses are sourced from a single provider who crafts both the hardware and software, and have tightly-coupled hardware and software architectures optimized for one another. Examples include IBM's SP2/PE, NCR's Teradata and Tandem Computers' warehouse offerings.

Merchant data warehouses are sourced from multiple providers whose hardware and software must support multiple partners. Their architectures are not as tightly coupled. Such providers include Informix, Oracle and Sybase.

The Great Debate

The question "Which data warehouse is best for my company?" generates as many answers as there are vendors. Every vendor has an opinion as well as a list of reasons why their opinion is the correct one.

In conducting Project Explore, we wanted to hear what users and implementors of warehouses had to say, and what they said often differed from the representations made by vendors. While we learned there are no silver bullets, we also learned many good tools are being deployed or implemented poorly — so poorly that their value is being seriously diluted.

The role that vendors and third-party consulting services can play in installations is a pivotal one: to minimize these poor deployments and implementations. Not only can these providers return early wins, but in the long term they produce a much more productive warehouse.

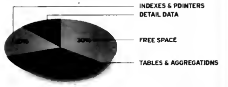
With this in mind, one must consider that for user needs at the departmental or business-unit level, the range of choices is much broader and a poor choice is less damaging. For a large-scale data warehouse at the enterprise-class level, the choices narrow rapidly and the impact of a choice can be profound. The choice can affect a company's competitiveness through early detection of customer preferences and buying habits, resources consumed in the warehouse implementation phase, and most importantly, resources consumed in the sustaining cost of operation for the warehouse

Most users indicated that their original business purpose for installing a data warehouse had expanded That expanded purpose led to growth that was substantial . . . and sometimes explosive. Newer warehouses tended to have 20-50 users. Older, enterprise-class installations had several hundred, with a few sites reporting user populations in the thousands. As one respondent noted, "Once your users realize how much they don't know, your challenge becomes availability and [detail] data acquisition."

➡ METADATA IS EXPENSIVE. IN A DATA WAREHOUSE, THE TABLES AND AGGREGATIONS EASILY OUTSTRIP THE STORAGE SPACE CONSUMED BY THE SYSTEMS' INDEXES AND POINTERS TO DATA.

To achieve a sustained level of user satisfaction with a data warehouse requires timely resolution to queries and a minimum of unresolved queries. The first successes from a data warehouse typically spark a user's imagination The resulting uptick in usage increases awareness of the relationship between the availability of detail data and that of answers. In fact, lack of detail data was the main reason users could not resolve a query from a warehouse

THE METADATA PICTURE



Explosive growth

Data growth of any type in warehouses can be explosive. Consider the storage growth involved in adding the full 9-digit U.S. Postal Service Zip Code to 40 million rows of storage. The four additional characters seemingly added 160MB of storage requirements. In fact, the increase was probably closer to 500MB! The reason? That ethereal data warehousing phenomena known as metadata — in its simplest form, pointers and indexes.

In addition to the pointers and indexes any warehouse needs to operate, metadata also includes tables and aggregations. The metadata phenomena is rarely understood until after the first data warehouse experience. The more scalable and the more parallelized the hardware and software are, the lower the table and aggregation component of the metadata requirement. Limitations in the underlying technology's performance, or ability to scale, can be offset by deploying additional "prebuilt" answers to anticipated questions. These prebuilt answers are the tables and aggregations. They are also metadata.

Metadata is expensive. In a data warehouse, the tables and aggregations easily outstrip the storage space consumed by the system's indexes and pointers to data. This cost is manifest in not just the storage consumed but also in the resources allocated for building, maintaining and keeping content current. The normal growth associated with the detail data used to build tables and aggregations is itself substantial.

Imagine adding not the four bytes of zip code data in the example of the Post Office but 200 bytes of detail data per record to your warehouse, and a few tables and aggregations to satisfy your users' growing appetite for answers. Suddenly, scalability has new meaning.

Most merchant warehouses average less than 5GB per warehousing employee. The best merchant performance is just under 10GB per warehousing employee. Combining user responses with Standish Group research leads to three compelling metrics:

- The largest warehouses belong to users who deployed provincial warehouse technologies

- For warehouses below 1TB, these firms reported 35-40GB of storage per warehouse employee.
- Provincial data warehouses realize economies of scale as they grow in terms of users and capacity. Merchant data warehouses do not realize these same economies.

Storage-to-personnel ratios in 1TB and larger provincial warehouses showed improvements over sub-TB provincial warehouses. The same was not true for merchant class warehouses, which required significantly more support employees as they approached 100GB.

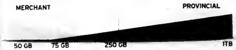
Warehouse size is key

The key factor in determining the type of warehouse was size. Fewer than 5% of the respondents who planned warehouses below 100GB chose a provincial warehouse. When initial warehouse size exceeded 100GB, provincial warehouses were chosen 75% of the time. When planned warehouse size exceeded 250GB, provincial warehouses were implemented exclusively.

The graph at the top of this page represents realistic thresholds for deploying the two warehouse technologies. If a company is near one of the transition thresholds, it should consider moving up to the next technology tier; the incremental costs can be small, while force-fitting the other technology can be more expensive and less satisfactory in terms of performance.

Although operating costs for provincial and merchant data warehouses are remarkably similar at these transition points, providers of provincial data warehouses appear to be singularly unsuccessful in persuading users that they fit the smaller warehouse environment. Providers of merchant warehouses are equally unsuccessful in penetrating the high ground that has been the forte of provincial warehouses.

USER DATA WAREHOUSE TECHNOLOGY DEPLOYMENT

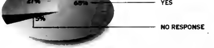


A company's commitment to a data warehouse above 250GB, and certainly at the terabyte level — in terms of people, time and money — is significant. Most enterprise-class warehouse users have chosen provincial offerings, which is partly attributable to the extraordinary capacity requirements, and partly to a sometimes unspoken but always present issue of risk management. Provincial warehouses have demonstrated an enviable performance record at TB and near-TB capacities.

What do these preferences mean? The margin of allowable error for equipment selection for smaller warehouses (data marts) is relatively large. It is hard to make wrong decisions at this level and low cost of entry looms big on the horizon. On the other hand, enterprise-

class warehouses have a rapidly narrowing corridor of allowable error for equipment selection. Risk management replaces low cost of entry in the selection pecking order.

USERS DESIRING VENDOR CONSULTING SERVICES FOR A SECOND INSTALLATION



BASED ON RESEARCH AND TELEPHONE INTERVIEWS, DATA WAREHOUSING USERS IDENTIFIED THE FOLLOWING SUCCESS CRITERIA:

User Involvement	20
Clear Objectives	15
Vendor Consulting	15
Limited Scope	10
Executive Commitment	10
Good Vendor Support	10
Phased Milestones	5
Technical Expertise	5
Right Technology	5
Other	5

Success criteria

To the left is a table showing the top success criteria for data warehouse users. After naming user involvement as the top criteria, respondents placed equal emphasis on the importance of clear business objectives and vendor consulting services. Because of the complexity of warehouse design and architecture, a majority of respondents said they would not contemplate a second warehouse without vendor consulting services.

Since the top three success criteria represent 50 of the possible 100 success points assigned by The Standish Group, their importance cannot be overemphasized. A failure to achieve in these critical areas fatally impairs the success of the proposed data warehouse.

Most requested items

Although warehouses are sometimes initially viewed as a large database, they represent very different structures and operating environments than traditional databases. Some of their differences are manifest in the design, architecture, deployment or operation of the warehouse. The mischaracterization as a large database can lead to implementation and operating issues for the installation team as well as users.

Respondents identified three items that would improve the quality of their implementations: better planning; increased IS staff training; and more user involvement. These three items point to a need for additional knowledge on the part of first-time data warehouse implementors (which all but one of the respondents were).

The annual IT budgets of the companies of the survey respondents averaged $78 million per year with a high of $300 million per year. These were sophisticated IT shops that already had considerable experience with multiple large-scale database implementations. Despite their credentials and their use of consultants (which they strongly recommended), these IT professionals were nearly unanimous in their opinion that increased planning, training and user involvement represented prime opportunities for enhancing data warehouse implementations.

Support personnel

Users drew distinctions between the operating characteristics of merchant and provincial warehouses, citing issues such as the number of personnel, particularly DBAs (database administrators) required to support the warehouse, along with current and planned warehouse size.

The number of support personnel necessary to operate a data warehouse significantly affects both initial deployment and sustained operating expense. Both provincial and merchant warehouses required about the same average number of support personnel: 6.0 and 6.7, respectively.

Although these figures were based on current year operations, they indicated future requirements. The largest operating warehouse in the study, a provincial warehouse, required only three support personnel.

Personnel requirements for merchant warehouses, however, increased rapidly as their capacities approached 100GB. The larger merchant warehouses in the 75-150 GB range used 15 to 20 support personnel.

Metadata fingerprints

A warehouse's responsiveness is a function of query type. As a rule, simple queries execute quickly; complex ones take longer. Predictable, repetitive queries often have their answers consolidated in a table or aggregation (metadata). The amount of metadata varies with the complexity of the anticipated query, the frequency of the query and the scalability of the underlying hardware and warehouse software.

Poor scalability, simple queries and high query volumes translate into larger numbers of tables and aggregations. Increased use of tables and aggregations can improve system response because query answer sets can be ready and waiting. The result? For a user, it is rapid query resolution; for an IT shop, it is a large and growing number of tables that must be created and maintained at some regular interval . . . frequently daily.

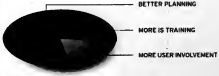
The creation and subsequent maintenance of these devices is manpower intensive. Merchant warehouses depend on these tools more than their provincial counterparts. Increased dependence on tables and aggregations and the higher number of support personnel required for 75GB+ merchant warehouses seem closely coupled.

Warehouse size

Merchant data warehouses averaged 62GB; users planned to grow them to an average of 118GB. Provincial warehouses averaged an initial size of more than 200GB with a planned growth to more than 1TB. Users forecast that the typical merchant warehouse would double in three years, and that over the same period, provincial warehouses would more than quintuple.

Both types of warehouses were expected to reach their planned maximum size in similar periods. Provincial warehouses were expected to reach the maximum planned storage in an average of 2.94 years; for merchant warehouses, it was 3.3 years.

TOP THREE CHANGES RECOMMENDED BY DATA WAREHOUSE IMPLEMENTORS



All users indicated that their warehouse would at least double in size within three years of its implementation. Those deploying enterprise-class warehouses planned for growth rates of five times or higher over the same time period.

IT management attributed this growth to their users' rapidly escalating appetite for warehouse services and the increasing amounts of detail and summary (meta) data necessary to resolve the expanding scope of their inquiries. The reason users gave most frequently for the inability to resolve a query was neither technology nor tools nor complexity; it was lack of detail data.

The potential for rapid increases in the amount of detail data and storage space required, regardless of system architecture, points to a need for the warehouse to be able to scale both rapidly and transparently for commercial users. The potential for rapid warehouse growth over relatively short periods of time emphasizes the need for linearity in both the performance and cost of performance scaling metrics. Rapid warehouse growth, coupled with rapid growth in the number of support personnel, discourage the use of some technologies in large warehouse deployments.

Cost of ownership

In our survey, we viewed cost of ownership from three perspectives: hardware cost, software cost and annual operating expense. In each category, we looked at the type of warehouse, the size of warehouse, and the hours of its operation.

Hardware costs averaged $481,000 for merchant data warehouses and $2.1 million for provincial warehouses. This wide disparity can be attributed to the warehouse's current and planned expansion size. The average in-service provincial warehouse was already essentially 100% larger than its merchant counterparts would be at planned maximum capacities.

ONE WOULD THINK LARGER WAREHOUSES REQUIRE LARGER SUPPORT STAFFS. BUT WHEN USERS WERE ASKED ABOUT THE NUMBER OF SUPPORT PERSONNEL REQUIRED TO OPERATE THEIR WAREHOUSES, THEIR RESPONSES INDICATED OTHERWISE.

Users of merchant data warehouses reported an average of 62GB in current configurations, with planned capacity averaging 118GB. Current configurations of provincial data warehouses averaged over 200 GB, or nearly double the merchant warehouse's planned expansion size. Users planned to grow these same provincial warehouses from this already significant capacity to more than 1100GB in less than three years.

Data on price and size argues that users were building two very different classes of warehouse, and it was visible in the cost of their hardware. On average, merchant warehouse hardware cost $7,750 per GB; provincial warehouses cost $10,000 per GB.

A look at the larger warehouses suggested that cost per GB of storage would decline with growth in both categories. More fully populated merchant warehouses appeared to converge on $3,000 to $4,000 per GB; provincial warehouses appeared to converge on $2,900 to $3,600 per GB of storage. The hardware costs per unit of storage appeared comparable for both alternatives as installations developed more fully.

Software costs

The hardware pricing barometer predicted two very different capacity data warehouses; so too did software pricing. Software costs for merchant data warehouses averaged $571,000, compared with an average expenditure of $1.3 million for provincial warehouses. This is in part due to the differences in tools and tool technologies needed to manage a 100GB warehouse vs. those necessary to manage a TB-class warehouse. Users of very large warehouses also face a much greater data acquisition, loading and maintenance challenge than users of smaller data warehouses. TB-class warehouses purge, load and manipulate as much data in one month as a 100GB warehouse does in an entire year.

Provincial warehouses had substantially lower software cost per GB of storage. Merchant data warehouses consumed an average of $9,750 in software per GB of storage; for provincial warehouses, it was $6,500 in software per GB.

Several users who operated enterprise-class provincial warehouses that started from more modest beginnings commented on the amount of data that was regularly manipulated. One summarized the comments of the group when he said, "Big jobs need big tools!"

Annual operating costs tracked less predictably against hardware and software costs. Merchant data warehouses commanded an average annualized operating cost of $906,000; their provincial counterparts averaged $1.4 million. This reflects some of the increased personnel costs associated with the larger merchant-class warehouses.

One would think that larger warehouses require larger support staffs. But when users were asked about the numbers of DBA and non-DBA support personnel required to operate their data warehouses, their responses indicated this was not so. On average, merchant data warehouses require 6.7 support personnel and provincial data warehouses require 6.0 support personnel.

Provincial warehouses tend to group tightly around 6.0 support personnel per warehouse. The merchant warehouses also tend to cluster around 6.7 personnel for those of 50GB to 75GB. But for 75GB to 100GB warehouses, users began to report surprising increases in the number of support personnel deployed, with some respondents indicating 18 or more support personnel.

Some of these additional personnel are used to maintain a higher ratio of summary tables and aggregations than their provincial counterparts employ. Others are consumed in the development and deployment of new and additional summaries and aggregations to meet rising user demands. Provincial warehouses are not free from the requirements to build summaries and aggregations; however, their users feel less compelled to build these devices than their merchant counterparts.

Summary

In terms of warehouse costs, provincial data warehouses offer substantial advantages at 250GB storage levels and above, but do not enjoy the same cost advantages in the sub-75GB capacities as the merchant data warehouse offerings. If a warehouse is targeted for a data mart deployment of 75GB or less, user reports indicate a merchant warehouse may be more cost effective.

Merchant warehouse expenses for support personnel (DBAs and non-DBAs) climb rapidly as warehouse capacities approach the 75GB to 100GB levels. Provincial warehouse support personnel expenses do not exhibit this same type of growth. Provincial implementations even at TB or near-TB sizes exhibit economies of scale that produce minimal growth in support personnel.

All warehouses grow rapidly. Even the smallest growing ones double every three years. Enterprise-class warehouses will on average grow by a factor of five over the same period. The source of the growth is success-related increases in user demand for access and new query resolution that requires access to increasingly more detail data. The most prevalent reason for an unsuccessful query resolution is insufficient detail data.

Provincial warehouse users place less emphasis on summaries and aggregations than merchant warehouse users. If a warehouse has a rapid growth in detail data storage accompanied by a corresponding rapid growth in summary tables and aggregations, the sustaining cost of operation will likely be raised by increasing numbers of DBA and non-DBA support personnel. The data storage and management requirements also escalate rapidly.

Responsiveness to a knowledge worker's query, including rapid resolution, not only reinforces the value of the warehouse but provides enhanced competitiveness for the firm using the warehouse technology. Increasingly, large support organizations for a data warehouse, aside from being expensive, can be an early indicator of reduced responsiveness and reductions in successful query resolution.

This White Paper is based on independent research previously published as part of Standish Group's COMPASS informational research service. Tandem Computers funded the inclusion of this supplement in Computerworld so as to share this research with the IT community.

The Great Debate

A SPECIAL STANDISH RESEARCH REPORT

ABOUT THE STANDISH GROUP AND COMPASS

The Standish Group International, Inc. is an advisory research firm for users and vendors in the mission-critical application marketplace, with a focus on electronic commerce. The company's research draws on extensive real-world experience and years of market research and consulting. The Standish Group also provides custom counseling services to clients in the Fortune 500, government agencies and major universities.

COMPASS (Comprehensive OLTP Management Planning and Strategy Service) provides in-depth analyses of existing and emerging technologies which The Standish Group believes are essential to the success of on-line, business-critical applications. The key enabling technologies are:

- Transaction management comprised of transaction processing monitors, database management systems and electronic commerce
- Reliable messaging and queuing software
- Object-oriented technologies
- High availability and high data integrity facilities.
- Support of critical technologies including application development, testing and enterprise-wide system management capabilities.

The COMPASS service, available on an annual subscription basis, includes objective, in-depth technology reviews as well as periodic and on-demand access to the Standish research staff.

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(508) 385-7500 Telephone
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ABOUT TANDEM COMPUTERS INC.

Founded in 1974, Tandem Computers Inc. designs solutions that companies rely on to compete in a business world that runs 24 hours a day. Headquartered in Cupertino, Calif., Tandem, through partnerships with industry leaders, is bringing its strengths of robustness, scalability, business-critical solutions and services to the world of decision support, networked computing and the Internet/intranet explosion.

Tandem entered the decision support market in 1993 and has established itself among the top tier of suppliers by defining a total solutions approach to decision support, helping financial service institutions, retailers, telecommunications providers and other companies rapidly realize the business value of their information. With Tandem's new Object Relational Data Mining architecture, companies can transform data into knowledge.

Tandem's approach encompasses business-driven services, technology optimized for single subject data marts as well as large scale data warehousing, and strategic partnerships with leading database and software tool vendors. Tandem is uniquely positioned to blend all the components of a customer's decision support or data mining initiative into a seamless, end-to-end solution, from business exploration to production.

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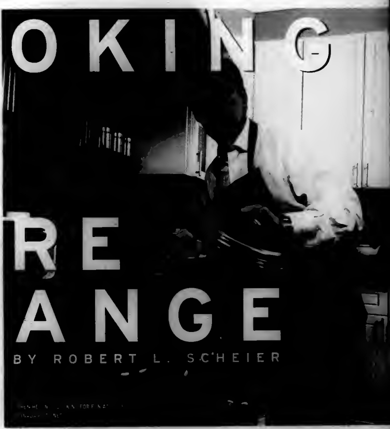
O' TransCanada! It isn't enough that CIO Doron Cohen reformed IS, pioneered client/server applications and forged close ties with line managers. Today's business demands more, so Cohen is again . . .

COOKING UP MORE CHANGE

BY ROBERT L. SCHEIER



CHRIS SCHRAMECK

Doron Cohen still isn't happy. And that means big changes for his information systems organization at TransCanada PipeLines Ltd.

Sure, he has already helped transform the Calgary, Alberta, company from a sleepy, regulated utility to an aggressive, $10.8 billion (Canadian) global competitor. He has successfully pioneered distributed databases and client/server applications. And he has changed IS from a much-hated support function to a true business partner with a can-do, aggressive attitude.

Cooking up more change, page 70

EYES ON THE PRIZE: IS FOCUSES ON THE BOTTOM LINE

BUSINESS CHALLENGES	IS RESPONSE
Repair pipelines with minimum downtime.	Deployed automated system to better manage repair projects. System is in use and manages $2.5 million worth of projects.
Understand total risk company faces from natural gas deals being negotiated by different business units.	Created single database with data drawn from multiple operational systems to allow companywide risk analysis. Now rolling out analysis applications that will use the data.
Ensure compressors that move gas through pipeline operate at maximum efficiency.	Now rolling out system to catalog performance and maintenance information about compressor parts.

TransCanada

Name: *TransCanada PipeLines Ltd.*

Headquarters: *Calgary, Alberta*

Revenue (1996): *$10.8 billion (Canadian)*

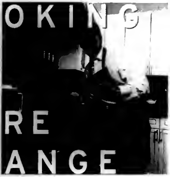
Profit (1996): *$425 million (Canadian)*

Line of business: *Energy transmission, marketing, generation and consulting*

Key business goal: *Increase earnings per share from $1.60 in 1994 to $3 by 2000*

Key business challenges: *Maintain aging pipelines with minimum maintenance downtime. Provide new services to gas shippers, such as the ability to buy or sell gas while it's in the pipeline. Grow new businesses such as energy trading and consulting. Expand overseas.*

COOKING UP MORE CHANGE



CONTINUED FROM PAGE 69

He has survived and even thrived as vice president of IS and telecommunications, even while the energy transmission and marketing company has struggled to adjust to a deregulated global market.

So why isn't Cohen content? Because even the fastest client/server development cycles aren't keeping up with business change. "They've done a good job of not inhibiting our progress, in allowing us to grow at a fairly steady pace," says Cliff Howe, TransCanada's general manager of market risk management. However, "at the rapid pace we're growing, they're stretched."

To help IS move more quickly, Cohen has launched a "third wave" of technology change that calls for World Wide Web-enabled applications, reusable components and "disposable databases" created as needed for specific applications. He also wants to forge closer ties to the business and fine-tune his programs to keep good people. But the real challenge is changing the attitudes and habits of the 250 IS professionals who must constantly do their jobs better if TransCanada is to meet its profit targets.

Here's how Cohen has succeeded so far and what it will take to reach his most ambitious goal yet.

THE PEOPLE TOUCH

Growing up in Tel Aviv, Israel, "my childhood inclination was to wire things up," Cohen remembers. Through the years, his tinkering progressed from computer hardware to computer software, from software to business issues and, finally, to the most critical resource of all — people.

Not that Cohen isn't highly technical. He has developed ballistic missile guidance systems, run large mainframe data centers and wrote a text book on data management.

The switch in his thinking came in 1983 when he was named chief information officer at a money-losing Canadian mining company to help turn it around.

In past jobs, Cohen remembered, he'd focused on technical questions about operating systems and disk drives. But, he says, "people are what make or break you. How you get people to change over time, and to keep changing, is far more important than either technology or even business issues."

To that end, Cohen takes pains to know everyone on his staff. "If you want to talk techie, he'll talk techie. If you want to talk about philosophy, religion, history, he'll talk to you about that," says Jess Harding, who worked with Cohen at TransCanada before becoming manager of IS at competitor Alliance Pipeline Ltd., also in Calgary. "He wants to see more of the well-rounded person than simply that technical bullet" on a resume, Harding says.

To attract top skills in a tight labor market, Cohen's organization is piloting a "Career Leaders" program designed to show techies how they can expand their skills and responsibilities without moving into management jobs for which they may not be qualified. If successful, it's expected to move beyond IS into the rest of the company.

Guiding all this effort are four key values identified by Cohen and a brainstorming team early in his tenure. They are "partnership, teamwork, the energetic pursuit of results and integrity," he says.

Buzzwords? Maybe. But anyone who can't or won't live by them is invited, as Cohen says, to "find happiness elsewhere." That's what happened to 34 data center veterans who, in early 1987, threatened to quit unless he reversed plans to unplug the mainframe. He called their bluff, even though he still needed the mainframe for critical business functions.

Most of the rebels eventually left. In fact, by 1990, when TransCanada moved from Toronto to Calgary, 60% of the company's IS organization had moved on.

Although his staff insists Cohen is big on coaching and encouragement,

THE COHEN FILE:

BORN: *Jerusalem*

EDUCATION:
- Bachelor's degree, electrical engineering, Israel Institute of Technology
- Ph.D., computer science, University of Waterloo, Ontario
- MBA, University of Toronto

PREVIOUS POSITIONS:
- Engineer, Northern Electric Division, Bell Canada
- Data center manager, Alcan Aluminum Ltd., Montreal
- Director, computer center, Israel Institute of Technology
- Director of Computing Services, University of Toronto
- Chief information officer, Kidd Creek Mines Ltd., Timmons, Ontario

HOBBIES: Cooking, woodworking

[illegible]

GOOD NEWS/BAD NEWS

WHAT'S GONE WELL	WHAT DOESN'T WORK WELL
Client/server applications can be adapted at the user interface . . .	. . . But inflexible databases cause back-end maintenance headaches.
IS has improved communication with its "business partners," understands business challenges . . .	. . . But some staff still look down on users who have trouble doing "easy" computing chores.
IS has greatly reduced the time needed to develop new systema . . .	. . . But the energy business changes more quickly than IS can develop new systems.
Distributed databases have helped speed development of new systems . . .	. . . But differing data models make it hard to share information among those systems.

feats such as rebuilding every corporate information system in three years "do not come just by gazing at navels and feeling nice," Cohen says. "There is a very, very hard core of no-compromise business sense that can only allow touchy-feely up to a point. Then the steel blade comes in."

THE BUSINESS CHALLENGE

When Cohen joined TransCanada in 1986, it held 20-year contracts to ship more than 90% of the gas in western Canada. Billing and ordering systems were primitive, befitting a company that had only 16 large customers.

Deregulation boosted the number of customers to 300 literally overnight and to 3,000 within a year. Each increase meant more work — and more complicated work — for TransCanada's applications. Just one upcoming change, to measure gas by energy content rather than volume, "is probably going to be as big a deal for us over the next few years as the year 2000" is for other companies, says Jim Brignall, director of development and business systems.

TransCanada's aggressive acquisition of other companies means more applications to integrate. Its moves into new businesses such as energy marketing mean new applications to build and maintain. It'a a testament to Cohen's organization that TransCanada has emerged from deregulation as a powerhouse, not a has-been. Its revenue rose last year to $10.8 billion from $7 billion in 1995, and earnings per share rose to $1.85 from $1.75 in 1995. Prospects are so bright that management recently upped its earnings target from $2.40 to $3 per share by 2000.

> **"You must have a vision. ... You must sit back and think about ... what you should look like in terms of culture, behavior, methodology, tools and infrastructure four or five years down the road. If you don't ... you are guaranteed an early retirement."**
>
> **– Doron Cohen**

Despite the technical challenges of coping with growth, Cohen tries to keep everyone focused on the business. As project leader Laurie Houston briefs her peers on a new system to calculate the risk of buying or selling natural gas based on how prices change, Cohen interrupts to point out that risk management "was a hot topic at the annual meeting." After she's done, Cohen turns in his seat to make sure everyone is listening. "Laurie is being very modest," he says slowly. "This is our most strategic project."

He keeps as close an eye on technical details, at one point challenging a presenter about his choice of Microsoft Corp.'s Open Database Connectivity data access specification instead of TransCanada's standard tool to link an application with needed data. Cohen is adamant about keeping a "common front" where everyone uses the same tools, says Sandy Leach, another IS project leader. That way, developers can easily be moved among projects, and — just as important — share what they learn.

THE ORGANIZATION

When Cohen came to TransCanada, "everyone hated us, and I mean with a passion," according to Brignal. IS was centralized, mainframe-centric, and the business managers were "out of mind and out of sight," he says.

Cohen created a central shared resources group, funded through assessments on all business units, to maintain the infrastructure, set standards and develop needed technical skills. He also created functional system teams, funded by individual business units.

This structure has won praise from respected outsiders such as Gartner Group, Inc. and from insiders such as Howe.

After buying an off-the-shelf risk analysis application, Howe planned to ask his functional system teams to build links among the package and 20 different data sources.

Cohen says he hates such patchwork solutions because they're expensive and often of little use to others in the company.

In other companies, this would mean a battle between the business manager and IS. But "after sitting down with the IS group," Howe agreed to a single new database drawn from the 20 different data sources, thus requiring only one new data link. What's more, the new database can be used for other analysis in the future. "At the end of the day, you get a better solution. You can't lord it over the IS group," Howe says.

But by 1995, Cohen saw that many client/server applications failed because the business had changed faster than users could define their requirements. This is why Cohen created what he calls his third wave of technology.

THE TECHNOLOGY

The first wave, between 1987 and 1990, meant shutting down the mainframe in favor of distributed databases that could be accessed by individual business units.

The second wave, from 1990 to 1995, meant client/server applications that access Sybase, Inc. databases from either PCs or Macintoshes. These current systems are inflexible, says Cohen, because although it'a easy to change the user interface, it'a much harder to change the design, or data models, of the associated databases.

For the third wave, from 1995 to 1999, Cohen plans a repository of reusable components from which the functional system teams can quickly build Web-enabled applications, drawing data from disposable databases created from a corporate repository.

Puffing on his pipe, Cohen admits he isn't sure how he'll solve technical challenges such as the lack of needed replication tools. So his plan "explicitly stipulates a world that doesn't exist yet," he says. Then he shrugs, almost cheerfully, like a man who has already created futures other people couldn't see. □

Scheier is Computerworld*'s senior editor, management.*

JIM CHAMPY

TALKING TO THE CYBER-BAFFLED

Recently, I watched a middle-aged executive, dressed in the proverbial pin-striped suit, wander distractedly around Cybersmith, a cybercafe in Cambridge, Mass., that's a cross between a digital playroom and a coffeehouse.

His apparent disorientation reminded me of my work with senior business executives: They know something big is happening with IT but really don't understand what to do about it. For example, the head of a large consumer products company recently told me he'd been asked by his CIO to spend $10 million to prepare the company for the digital age. This CEO said he wasn't concerned about the money but about whether he was doing the right thing.

As a technology professional, what do you say to line executives who are confused in cyberland?

First, tell them what they need to know most: The most significant development in technology in years is its ubiquity. The omnipresence and accessibility of communicating technologies — principally the Internet — means their business will change.

As you explain that, hold the technobabble. Executives don't want to hear about bandwidth, devices, browsers or digitization. Two minutes of jargon makes their eyes glaze over. They want the discussion to be about net — the bottom line — not *the* 'net.

But what if they don't really believe in a wired world or the idea of electronic commerce? The business news that they read has been about the failure of companies to make money in electronic channels.

Then give them a few facts: Over the next three years, the number of U.S. households online will rise from 14.7 million to 36 million, or more than one-third of all households, according to Jupiter Communications in New York. In that same period, the number of U.S. businesses connected will swell from 40,000 to 380,000, reports Forrester Research in Cambridge. The number of U.S. adults with access to commercial online services has surpassed 45%, AT&T says. And whereas in the past most online buyers were men, today women account for 60% of online shopping, according to the *Internet Shopping Directory*. All this will make technology even more ubiquitous.

So how should you counsel executives to think about technology's effect on their businesses?

First, they must recognize that technology will continue to enable time compression. Businesses must plan for faster response times and deliveries to customers. A person who buys through electronic channels will have no patience with a supplier that's out of stock. It will be too easy just to go to someone else. A business also must plan for faster product obsolescence because product development cycles will continue to compress. The Sony phenomenon of relentless product refreshment will become the rule.

Second, line executives must know that the consumer will finally become supreme. Just wait for real-time "auctions" to become common. It's already happening on the Internet for automobiles. The consumer just specifies what he wants, and an electronic intermediary finds it for him at the best price.

Third, the way consumers want to buy products — or employees find jobs — will dissolve any vestiges of corporate control over individuals. For example, online job searches are forcing the development of a whole new set of nurturing cultural values within technology companies, where the "assets" are highly mobile and seek meaning and fulfillment in their jobs. This phenomenon will spread to other industries in this time of nearly full employment.

That last point will be a real cognitive stretch for line executives. It isn't easy to visualize a world driven by individuals, especially when you've grown up in a command-and-control management world with a producer-driven view of markets. It may sound Pollyannaish to them, so don't push the point too hard. In fact, be careful not to promote the digital world too aggressively. A line executive's sensibility tells him that we will live in a world that's both digital and physical for a very long time. And that's largely true.

I was reminded of this recently when preaching too hard about the need to prepare for the future. My guest asked me whether he would have to take an airplane home or whether I could "beam" him to Cincinnati — a reference to *Star Trek* technology. It made me realize that when talking to executives about technology, it's important not to get carried away. After all, not everyone is comfortable yet at the cybercafe. □

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RESOURCES: IS MANAGER'S BOOKSHELF

Security in Distributed Computing: Did You Lock the Door?
By Glen Bruce and Rob Dempsey
Prentice Hall PTR, Saddle River, N.J.; (www.prenhall.com); 464 pages; $44 (paperback)

Newbie information systems managers who rely on distributed computing will probably find *Security in Distributed Computing* an effective, succinct and logical heads-up to achieving secure networks.

Bruce and Dempsey are consultants at Hewlett-Packard Co.'s Professional Services Organization who specialize in helping clients solve security issues in distributed computing and open systems. The authors suggest taking a cue from your home security system and using a balanced approach to achieving truly secure networks — one that figures in the people *and* technical issues. Their advice is aimed at the lowest common denominator among managers: It assumes nothing and explains everything.

The opening chapters lay the groundwork by reminding IS managers that security is a business problem that can't be rectified by technical solutions alone. That point is repeated throughout the book, but it's a fine one to hammer home: Uncoordinated expenditures on technical security solutions actually can contribute to the problem.

Mismatched technologies may result in profit/revenue loss long-term and a network that is more like a data sieve than a reservoir of information.

Through repetitive but effective use of analogy, Bruce and Dempsey present the challenge to IS managers in the first six chapters: Shift with the tide, and recognize how the responsibility for security and maintenance may have changed for IS managers. Understand what you're protecting and why you need to protect it before you determine which technology you'll use to do so.

Succeeding chapters concentrate on the steps needed to develop a security policy. These include specific solutions for Unix and Windows NT environments, Internet firewalls, electronic commerce and cryptography.

Experienced IS managers may find the guide a bit simplistic but may cull some nuggets of wisdom in the security implementation examples cited at the back of the book. In particular, they should go to Chapter 23, which outlines a methodology for creating and implementing a secure network. The book also features several appendixes on topics such as strong user authentication and remote access. And it has a killer reference list. — Roberta Fusaro

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1. BUSINESS/INDUSTRY (Circle one)
- 10. Manufacturer (other than computer)
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CORPORATE MANAGEMENT
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- 90. Other Titled Personnel

3. Do you use, evaluate, specify, recommend, purchase: (Circle all that apply.)

Operating Systems

(a) Solaris	(e) Mac OS
(b) Netware	(f) Windows NT
(c) OS/2	(g) Windows
(d) Unix	(h) NeXTstep

App. Development Products ☐ Yes ☐ No
Networking Products ☐ Yes ☐ No
Intranet Products ☐ Yes ☐ No

4. Which of the following products do you buy, specify, recommend or approve the purchase of? (Check all that apply.)
(a) ☐ Internet software
(b) ☐ Internet browsers
(c) ☐ Web authoring/development tools

5. Do you use the Internet? ☐ Yes ☐ No

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Buyer's Guide

PRODUCT REVIEWS:

Wayfarer's Incisa and Lanacom's Headliner offer rich presentation and are easy to use. The downside? They're a little clunky and show some performance strain.

Attention Grabbers

Push technology put to the test

BY ROSS M. GREENBERG

Many products have inherited the "push" label, but only a few truly fit the definition for that emerging technology. The two products reviewed here are examples of "true push," which I define as the acceptance, manipulation, display and even the execution of unsolicited but permitted content from a remote server to the local desktop.

Wayfarer Communications, Inc.'s Incisa is well-suited for getting a flashy message out to customers or employees — first comes the punchy attention-getter, then comes the content to back it up. It's easy to use, versatile and powerful for the system and content administrator.

Lanacom, Inc.'s Headliner product family shows creative and useful interface designs — great for transmitting information from different sources to different groups of people. Adding a personal channel was a snap, as was adding filtering criteria. Headliner is particularly well-suited for grabbing and pushing updated information from sites in which the push administrator doesn't have control, such as the stock market or a competitor's site.

In the first entry in this series [CW, May 26], we reviewed Marimba, Inc.'s Castanet and BackWeb Technologies' BackWeb.

Attention Grabbers, page 76

[illegible]

[illegible] phone calls.

[illegible] swinging by.

Other people's "private" conversations.

The only thing wrong
with your cubicle is that you're
expected
to work
there.

intel inside
pentium

Attention Grabbers

CONTINUED FROM PAGE 73

Wayfarer's Incisa has four main parts: the Desktop, the Reporter, the Server and the Databridge.

The Desktop is the end-user interface. It catches and displays pushed information. The Reporter lets a configured entry be published to the server for delivery to a subscriber's desktop. The Server permits the various filters, feeds and subscription and membership lists to be maintained with surprisingly good security. And the Databridge allows information sources — including remote servers and corporate databases — to be incorporated into the pushed feed of data. That provides a way, for example, to have immediate low-inventory reports pushed out as required. The first Databridge license is included in the package; additional licenses are available for a $2,500 onetime fee, plus $450 per year.

Each item for delivery is generally composed of two parts. First is the "alert" — an eye-catching, Macromedia, Inc. Shockwave-based "movie." It's really just a teaser that is displayed in a small stand-alone window on a subscriber's screen. When a user clicks on an active area of the teaser — the optional second part of the alert — a uniform resource locator (URL) displayed on the browser is activated. It can be static data — a simple World Wide Web page, perhaps — or it can be more dynamic, based on information from alternate feeds.

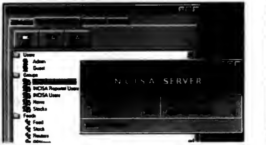
Such feeds might include news, stock updates or other timely standard information, or reports generated from your databases through a Databridge.

The Reporter is the interface to the delivery database. It tells the server what to deliver to whom and when. Information also can be encrypted if the delivery of sensitive information across an open channel is a concern. The optional channel encryption features cost about $10, plus $2 per year for each concurrent user.

Incisa is easy to use. A configured alert has a title, general message, an optional URL and URL title and scheduled start and stop times.

It also includes options for setting a priority and the number of times to push the alert. Each alert can be registered as an update to a previous alert, which effectively overwrites older alerts not yet delivered. Think of stock market updates — only the last one matters, so there would be no advantage in having to wade through older quotes being pushed to you. But for trend analysis, updates would be turned off, so each tick could be seen.

Customer data can be extracted from databases or real-time acquisition hardware by using standard desktop or automated query tools such as SQL database triggers or fully programmed applications. Extracted data is placed in a simple database that is scanned periodically by the Incisa engine. Each entry causes individual messages to be sent to the server. They are filtered and distributed to interested subscribers as defined by the server administrator. It sounds more than a little clunky — and it is — but it works well once you get used to it. Wayfarer's Incisa shows surprising maturity for a new company and new product in a relatively new field. Wayfarer seems to have addressed many of the problems of true push, such as group administration and corporate database interfaces.



Product: Incisa
Company: Wayfarer Communications in Mountain View, Calif.
Web site: www.wayfarer.com

PROS: Easy setup and delivery of sophisticated presentation "teasers," mature true push product, easy channel creation, good filter and gateway mechanisms
CONS: Full incorporation of external data sources is cumbersome
PRICE: Server license: 100 concurrent users, $5,000, plus $3,300 per year; 1,000 concurrent users, $25,000, plus $14,100 per year

Lanacom's Headliner is the first of the controlled push products to make the transition to true push. It has done so by integrating the Tibco, Inc.'s Rendezvous Information Bus Software engine with its server.

I worked with Headliner — the beta release of Headliner Professional — and the prebeta release of the Enterprise and Workgroup editions. No delivery date has been set for the Professional and Workgroup editions.

The Enterprise and Workgroup editions incorporate the Tibco technology and are impressive true push releases.

The difference between controlled push — sometimes thought of as polling — and true push is easy to see. True push features reduced bandwidth requirements and gives immediacy to updated content.

Headliner stands out by its displays of information. It features standard, full-screen screen-saver displays that disappear with a keystroke, a smaller ticker display and clever ticker usage of the title bar of the active window.

But the title bar ticker takes some getting used to: The active window's ticker roams as a user switches windows, and finding the ticker is difficult at first. It uses barely any space on the screen, though, which makes it great to use on busy screens.

Headliner's local client checks channel content on a scheduled basis for changes, taking any of a variety of actions from simple alerts to full site downloads.

Users and administrators can add and control new channels easily. After naming the channel and categorizing it, the affiliated Web site is entered and then downloaded. Each change in a Hypertext Markup Language tag is noted on a display, and the first variable area that can be considered a headline is flagged. Toggling the display from Web view to text was easy during this process. After marking all such headlines, filtering and alert rules are entered. Matching entries are then discarded or promoted to special actions upon reception.

Some channels included by Lanacom have special features incorporated. Those features show up if you highlight Headliner's Manager, then right-click your mouse button and select properties. For example, selecting the properties of a stock price channel could let you set alerts when a stock reaches arbitrarily defined limits.

The Workgroup release builds on Lanacom's current consumer-oriented release, which lets users subscribe to any of 700 channels. In the Workgroup release, the manager of the server can restrict access to those channels.

The Workgroup manager also defines to which group or groups a member of a workgroup belongs, defining which channels they can access.

Some of the true push features of the newest Workgroup release include moving the above-mentioned administrative tasks to the server, letting the server do the scheduled polling of each channel to determine if content has changed and applying both server-based filtering and alert rules as applicable.

Items that pass such muster are added to the server's database. Those items are then pushed to waiting subscribed group members' clients, where further individual filtering and alert rules can be applied. Finally, qualified items are added to the client's local database and displayed as appropriate, giving dual filtering of channel changes. □

Product: Headliner Professional, Enterprise and Workgroup editions
Company: Lanacom in Toronto
Web site: www.lanacom.com

PROS: Deep channel selection, multiple-display capability, easy setup, great filter capabilities, easy channel creation
CONS: When display is active, there is a modest performance hit
PRICE: Headliner, free; Headliner Professional, $50 to $69.95 per user;

Greenberg is a software developer and reviewer in New Kingston, N.Y. He can be reached at greenber@ramnet.com.

In Depth

A NeW PaGE

McGraw-Hill has seen the future of publishing — and it hinges on information technology

McGraw H
President and
CEO Joseph
L. Dionne
(left) and CIO
John Ker

PHOTOS BY RAFAEL FUCHS

BY GARY H. ANTHES

McGraw-Hill President Joseph L. Dionne presents a bold vision for his company, loaded with references to real-time information feeds, online databases, electronic publishing, computer gateways and international satellite links.

But Dionne never once mentions the Internet or the World Wide Web in his keynote address. Reason: He gave this speech 14 years ago, and for the commercial world, the Internet did not exist.

Dionne, now 63 and chairman and CEO of The McGraw-Hill Cos. in New York, still views the company's future in technological terms. But today, the Internet, intranets and the Web are part of his vision. In fact, they're at the heart of it.

"In the end, what this is about is collaboration, and networks enable collaboration," Dionne says. That collaboration is unfolding on multiple fronts at McGraw-Hill, and it's fundamentally changing the way the 109-year-old company works internally and how its customers view it. McGraw-Hill uses internetworking technology to share information across its autonomous business units and bring customers into its databases. Managers say this is reducing costs, speeding product delivery and making the company more responsive to the unique needs of each customer.

The $3 billion publishing and information services company earlier this year unveiled a corporate intranet, and it recently shipped to employees 10,000 copies of Netscape Communications Corp.'s Navigator 3.0.

The intranet is intended to offer employees convenient and cost-effective access to basic information such as the employee handbook and executive memos. But its most important role by far is to chip away at

A new page, page 78

A NeW PaGE

CONTINUED FROM PAGE 77

the vertical "silos" of information held by the company's 40 autonomous business units.

"We want a big house, not a collection of bungalows," says Jack Goodman, senior director of corporate communications. "That's a Joe Dionne concept. He was way ahead of his time, but now his vision is enabled by technology."

"McGraw-Hill is looking for ways to build relationships with their customers and increase the value of their information by increasing the frequency of its use," says Rudolf A. Hokanson, an analyst at Deutsche Morgan Grenfell in New York. "The company is putting into practice what a lot of the Information Age experts are saying — that you can be overwhelmed with information, so you have to make your information something that really adds value."

DESIGN YOUR OWN

Networking technology is facilitating customer collaboration at McGraw-Hill's Primis unit, a just-in-time publishing service for college professors. Primis allows instructors to design their own books by selecting items from a huge database of textbooks, journals, laboratory manuals, case studies and historical documents. It can reduce to a few days a process that once required weeks or months.

Benjamin Forest, a visiting lecturer at the University of Illinois at Chicago, used Primis recently to build a book for his undergraduate course in sociology. He selected articles, essays and other items from the Primis Web site and E-mailed his choices to Primis. A week later he had a draft book in his hands.

Ten days after receiving the instructor's approval, Primis shipped to the campus bookstore 200 copies of a bound, 328-page text printed on an IBM digital press. "The big savings is students don't buy anything they are not going to read," Forest says. "And it's very flexible; I can easily change topics from semester to semester."

KNOW THY CUSTOMER

Giving customers such as Forest access to McGraw-Hill databases means the company must sharpen its understanding of what those customers do with information, Dionne says. "The more we understand the customer's value-added, the more indispensable we can be to their business."

For example, McGraw-Hill's Tower Group International, which helps companies manage and track their imports and exports, directly adds value to customer information. It takes customers' product dictionaries and tags items with federal regulatory information such as import quotas and U.S. Food and Drug Administration restrictions.

"We maintain data on their computers, and they maintain data on ours," says Tower Group President Boh Mooney. "An intranet can eliminate some of the physical barriers."

At a GLaNCE

[illegible] is a publishing [illegible] services company. [illegible] of business, [illegible]

1996 FINANCIAL HIGHLIGHTS
Operating revenue

Educational and professional publishing:	$1,278M
Financial services:	$856M
Information and media services:	$942M
Total:	$3,076M
Operating profit:	$531M
Employees at year's end:	16,220

Tower Group and Federal Express Corp. jointly developed an import tracking system used by Tower, FedEx and the U.S. Customs Service. It has eliminated a flood of paper and essentially erased boundaries that separate the organizations.

Installed at FedEx's new international huh in Indianapolis, the document-imaging system can tell Customs what's in FedEx shipments while an incoming plane is still in the air, then track that cargo through the Customs clearing process.

FedEx officials praise the system and the teamwork that produced it. And the Customs Service hails the innovation that allowed government and industry to jointly use an application. "This is very much outside-of-the-box thinking," says Clint Littlefield, who heads up cargo processing in the region that includes Indianapolis.

"The more sophisticated companies are constantly looking at streamlining their business processes, and we wind up literally integrating our systems with theirs," Mooney says. "Looking at how we can use the intranet internally has caused us to rethink how we provide data to our customers."

Some of the electronic paths from McGraw-Hill go to individuals, not businesses. In September, Standard & Poor's will launch a consumer investor service aimed at helping investors manage their stock portfolios. It will combine information from a number of S&P business units, *Business Week* magazine and possibly other McGraw-Hill businesses.

One of the toughest challenges in establishing such close links with customers is knowing just how to protect the confidentiality of their information, says Neal Allen, a spokesman for McGraw-Hill. "We take the privacy issue very seriously, and it is not an easy issue," he says. "It's something on which we have drawn in many, many people."

Indeed, last week, McGraw-Hill released a comprehensive policy statement that explains just how it will protect confidential data. The statement includes details such as who at the company may access customers' Social Security numbers, what data is to be encrypted and what kind of encryption is to be used.

DIRECT ACCESS

The S&P Platt's unit of McGraw-Hill provides real-time market intelligence and pricing for commodities traders in energy, chemicals and metals markets worldwide. Platt's 16,000 subscribers can use the Internet to tap directly in to its databases of prices, transactions and news to watch oil flows worth $1 billion per day.

And a few oil companies have established even tighter links with Platt's. Conoco, Inc.'s intranet home page gets a feed of Platt's oil news and prices. That information, now available to more than 10,000 Conoco employees, allows the company to avoid "tons of paper subscriptions," says Kevin Carpenter, manager of commercial support for crude oil supply and trading at the company in Houston.

According to Carpenter, Conoco traders no longer have to come to his group for help doing historical analyses of oil prices. "This gives all those users at our refineries the data directly to put into their systems. They can do trend analyses every day now," he says.

Thus enabled by internetworking technology, data flows from editors at McGraw-Hill to end users at Conoco with little or no intervention by information systems staffs at either company. Such seamless connection of information producers and consumers is a linchpin of McGraw-Hill's information systems strategy, and it's beginning to fulfill the vision outlined by the company's chairman 14 years ago. □

Anthes is Computerworld*'s senior editor, special reports. His Internet address is gary_anthes@cw.com*

From the CIO

[illegible]

[illegible] operating [illegible] McGraw-Hill where he [illegible] worldwide book distribution and editorial production in addition to IS. He says that experience has brought him invaluable credibility and know-how when dealing with other McGraw-Hill managers.

Kerin says he hopes that one day all his IS vice presidents will be able to work in one of McGraw-Hill's mainstream operations.

Gary H. Anth

MILLENNIUM
amdahl

PILLARS *of the* COMMUNITY

When IS managers let their employees take public service sabbaticals, they get leaders in return

By Kathleen Melymuka

SUSAN BLUBAUGH

Jose Espinoza is a software engineer at Xerox Corp., but last year his job description was a little hard to pin down.

Espinoza worked at the Even Start Family Literacy Program in his East Palo Alto, Calif., neighborhood. His tasks ranged from teaching computer literacy to helping people with drug and delinquency problems.

As a volunteer in Xerox's Social Service Leave Program, Espinoza did a little of everything. He stretched his technical muscles by networking and programming in the previously unfamiliar Macintosh environment. He enhanced his leadership skills through teaching and counseling. Coping with the complex and conflicting demands of an underfunded nonprofit honed his organizational and managerial talents. And his heart got a workout, as well.

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"The program allows us to put our arms around tha community and increase the bank's visibility," says Kathleen Lucier, an executive vice president of administration for the Southwest retail region at Wells Fargo. "As a manager, I value volunteerism highly. Volunteers are leaders, decision-makers, motivators and organizers — all qualities vital to job performance," she says.

Pillars, page 82

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Three Software Engineers sought to analyze business problems, create program specifications, construct programs, and test programs specifically for a UNIX client-server environment. Responsible for performance tuning, development of time estimates, creating test plans, and creating program and system documentation. Requirements: Bachelor degree in Computer Science, Engineering, or a related field plus 3 years experience in the Job Offered or in systems analysis or software development. Such experience must include strong database background; demonstrated knowledge of SYBASE and its utilities and ORACLE and its utilities; work in a client-server environment; UNIX Shell Programming, C language, workstation running UNIX and/or DOS/Windows. Hours: M-F, 8-5, 40 hrs/wk. Salary $60,000/yr. Must be willing to travel to various client sites throughout the U.S. If interested, please send two resumes to Case #70460, PO Box #8968, Boston, MA 02114

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PILLARS *of the* COMMUNITY

CONTINUED FROM PAGE 80

"I learned that it's easy for people to undervalue themselves," Espinoza says. "It's easy to think no one cares. But everybody's story matters."

Xerox, Wells Fargo & Co and American Express Co. have bought in to the idea that everybody's story matters. They're helping their employees make a difference by offering companywide programs of extended, fully paid leaves for volunteer work. □

Melymuka is a freelance writer in Duxbury, Mass.

PAM HOLLEY

COMPANY: Wells Fargo, San Francisco

POSITION: Vice president, systems manager

YEARS AT COMPANY: 18

SABBATICAL PLANS: For six months in 1983, Holley worked at Children's Hospital in Oakland, Calif., developing a sickle-cell anemia-related database. For three months in 1993, she developed a database that analyzes sickle-cell study findings for use in grant applications.

REASON FOR APPLYING: "My daughter was born with sickle-cell anemia. The leave gave me the opportunity to find out more about the disease while giving back by developing a database to organize all the sickle-cell data."

SABBATICAL REALITY: "I did extra stuff, mostly fund raising for Children's Hospital. I just got on the phone and persuaded people to give me money. I got a list of big corporations and called them all to see if they would donate for the yearly camp for kids."

CAREER BENEFITS: "It was a PC-related database, and that was fairly new back in 1983, so just designing it enhanced my skills. I taught myself to do it, so it gave me confidence, too. I also [did] fund raising on the side, which I didn't think I could do. It definitely improved communications skills that I've been timid about."

SUMMARY: "We take what we do at work for granted, but when I went there it was rewarding to know my skills would help. In fact, Children's [Hospital] wanted to hire me, but I like it here at Wells Fargo. And now I'm in management, which was where I wanted to be."

ART BARNETT

COMPANY: American Express, New York

POSITION: Project leader

YEARS AT COMPANY: 11

SABBATICAL PLAN: For six months this year, Barnett developed a World Wide Web site for NetDay 2000, a national effort to get schools on the Internet. He also established a New York-based arm of NetDay called NYConnects and managed a team that developed a database used to help match the skills of volunteers with school needs.

REASON FOR APPLYING: "To be a good citizen of the community, to ensure that students are provided the opportunity to keep up with technology and to broaden my skills in another type of work environment."

SABBATICAL REALITY: "I'm doing more than I anticipated. There's a lot of coordination and education that needs to be done in nonprofit organizations."

CAREER BENEFITS: "I developed my skills above my expectations in a lot of areas, especially in leadership. I needed to take a leadership role and say, 'This is what we need to do.' I got exposed to a lot of different management styles [so] I've learned to adapt my leadership behaviors for different groups. I've [also] gained ample skills in Web design and management and have used my skills in LAN infrastructure."

SUMMARY: "The best thing is that, maybe not today, but in the long term, I've provided some schools and children with the opportunity to access technology."

JOSE ESPINOZA

COMPANY: Xerox, Palo Alto, Calif.

POSITION: Software engineer

YEARS AT COMPANY: 12

SABBATICAL PLAN: For six months last year, Espinoza taught computer literacy at the Even Start Family Literacy Program in East Palo Alto.

REASON FOR APPLYING: "It was an opportunity to work with people in my own neighborhood. There may be more brilliant Mac programmers out there, but I'm from the culture. People are much more complicated to deal with. Technology is easy."

SABBATICAL REALITY: He taught computer literacy, revived an unused Macintosh lab, hooked into the Internet, computerized school district forms and reports, reapplied for a federal grant, developed close ties with community parents and children, and drove a van.

CAREER BENEFITS: "I had to learn about Macs, [and] I learned that I have the ability to stay calm in a crisis. That helped me as a developer. I also learned how important it is to encourage people who appear to be not confident in themselves. Somewhere along the line, that's going to help me a lot."

COMPUTERWORLD

Project management skills are hot. Training expert Lina Fafard's advice on how to get 'em and flaunt 'em is at our Web site: *www.computerworld.com/careers.*

IT CAREERS INDEX

■ The hiring pace for IS professionals is rapidly accelerating heading into the summer. Three-month hiring projections for permanent staff rose 3% from last month, while 12-month projections showed a 12% increase.

	Within 3 months		Within 12 months	
	Permanent	Temporary	Permanent	Temporary
Percentage change in IS staff	3%	15.6%	3.3%	NA
Percentage of managers increasing staff	25.2%	11%	34%	7%
Percentage of managers decreasing staff	NA	NA	4%	5.2%
Percentage of managers maintaining staff levels	NA	NA	62%	87.8%
Current staff mix	Permanent 94.2%		Temporary 5.8%	

Base: 985 IS managers
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Consultant. 40 hrs/wk, 9am-5pm. $45,000/yr. Design, develop, implement & test software for management information systems. Software management encompassing all phases of system development life cycle. Technical training & support. Tools: AS/400 & utilities: RPG/400, SQL/400; OS/400; BPCS; AS/SET, CL/400. B.S. in Computer Science as well as 2 yrs. in job offered or as a Programmer or Systems Analyst required. Prev. exp. must include BPCS, AS/400, RPG/400, AS/SET. Must have proof of legal authority to work permanently in the U.S. Send two copies of both resume and cover letter to: ILLINOIS DEPARTMENT OF EMPLOYMENT SECURITY, 401 South State Street - 3 South, Chicago, IL 60605, Attention: Leonard Boksa, Reference #V-IL-16492-M. NO CALLS. An Employer Paid Ad.

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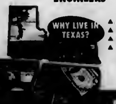

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Twenty Senior Programmer/Analysts sought to work on the analysis, design, development, testing, implementation, and revisions of management information system applications in a client server environment. Also responsible for future enhancements and maintenance of the applications. Requirements: Master of Science degree or Bachelor of Science degree plus 2 years MIS experience. The degree must be in Computer Science, Engineering or a related field. Education or experience must include: client/server (object oriented) environment, PowerBuilder/PowerScript, RDBMS (Oracle or Sybase) and object oriented programming principles. Hours: M-F 8-5, 40 hrs/wk. Salary $50,000/yr. Must be willing to travel to various client sites throughout the U.S. If interested please send two resumes to Case #70581, PO Box #8968, Boston, MA 02114

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- **Systems Analyst**

REGIONAL SCOPE

Connecticut

AT CONNECTICUT Natural Gas in Hartford, Jay Agosto has had a job opening since last August for an information systems professional with two to five years of Cobol experience. The job pays up to $55,000, says Agosto, a human resources representative at the utility. So far, he's had no takers.

Agosto's experience is typical at many Connecticut companies struggling to fill jobs in a place where the demand far exceeds the supply. Sandwiched between the major metropolises of New York and Boston, the scenic, coastal state of Connecticut is on an economic upswing. But employers are struggling to find IS pros with the right combination of skills, particularly in larger cities such as Stamford, New Haven and Hartford. Here's a look at the job market in each.

Despite hot job openings and salaries, Connecticut IS employers are having a hard time finding talent

damned YANKEES

BY LYNN HABER

STAMFORD

Pitney Bowes, Inc. vies for the same client/server talent as Hartford and New Haven. But it does so in the more competitive climate of the state's southwestern Fairfield region. Located just outside New York, companies in Fairfield County compete with the city for IS talent.

Client/server job openings at Pitney Bowes fluctuate between 10 and 25 in number, says Mary Tetro, director of staffing at the mailing systems division. "We're also moving to Windows NT and are finding a scarcity of people with NT skills as well," she says.

The company also is having a difficult time filling a position for a network data security manager with eight to 10 years of hands-on network engineering experience for its intranet/Internet environment.

Local hiring managers know IS talent doesn't come cheap. Anyone with three years of client/server experience makes a minimum of $45,000. Higher-level project managers can make $75,000 to $100,000.

Hard-to-find NT-certified job candidates with a Novell background demand $50,000-plus. But certified network administrators are in good supply and make less than $45,000.

NEW HAVEN

Sargent Manufacturing Co., a subsidiary of Essex Industries, has two positions open in its IS group of 12 employees. The $125 million maker of architectural hardware is making the transition from mainframe to client/server computing. According to Jack Dwyer, director of human resources at Sargent, the need for candidates with just the right mix of soft and hard skills adds complexity to the search.

"We're looking for people that know the technology but can also interface with the end users," Dwyer says. One opening at Sargent is for a client/server programmer with Oracle skills. The other is for an IS professional who can work with a client/server project manager to implement new technology. Familiarity with electronic data interchange also is desirable.

Despite the company's tough time in recruiting, it isn't easing up on requirements. Dwyer expects a winning candidate to have three to five years of experience in client/server computing and exposure to the mainframe environment. "We're looking for people with broad views vs. tunnel vision," he says.

HARTFORD

Massachusetts Mutual Life Insurance Co. began the year with 150 IS job openings. After a recent merger with Connecticut Mutual Life Insurance Co., the company needed additional IS resources, according to Debra Wojcik, director of staffing. The company is recruiting all levels of expertise in all areas of IS. The heaviest demand is for client/server project managers and developers, and mainframe developers. Job openings exist to a lesser degree in the networking area.

"We've had the most success finding entry-level people that we can train and more experienced job seekers with six-plus years of industry know-how. But finding people in the midrange, with two to six years of IT experience, is the most difficult," Wojcik says. The skills Mass Mutual is looking for: Visual Basic, PowerBuilder, Sybase, Informix, Cobol, CICS, VTAM, Unix and AIX.

Hartford Hospital still supports a mainframe environment, but its future rests with client/server. "We're always trying to bring client/server talent on board, but hires are difficult to find," says Cathy McCarthy, a human resources consultant at the hospital. The hospital has six job openings for people with skills in Visual Basic, Sybase and Oracle. Projects with short deadlines have forced the hospital to seek candidates with three to five years of experience, a group severely short in supply.

The need for mainframe system skills, such as Cobol, CICS and DBa, is acute. Stan Durbas, president of Data Careers, a recruitment firm in Middleton, sees a continual need for mainframe talent. □

Haber is a freelance writer in Norwell, Mass.

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Source: Computerworld's 1996 Annual Salary Survey

COMPUTERWORLD

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COMPUTER SCIENTISTS/ENGINEERS- To develop, enhance and maintain client/server applications and interfaces to mainframe applications. Experience with Visual Basic, Sybase, and MS ACCESS is required. Familiarity with Sybase interfaces to other databases like DB2 and ADABAS is a plus.

For consideration forward your resume indicating position desired and salary history to: **Corporate Center, Human Resources, Northeast Utilities System, P.O. Box 270, Hartford, CT 06141.**

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Information Systems Programmers

Travelers Property Casualty, now the 4th largest company in its industry, looks forward to another profitable year in 1997. It is not surprising that BUSINESS WEEK cited TPC s chairman, Bob Lipp, as one of the Top Managers of 1996 . We are proud to be a member of the Travelers Group, now ranked number 40 on Fortune s 500 list. Our Hartford headquarters provides the opportunity for career growth with over 2000 systems positions supporting multiple businesses across the U.S. In addition to a comprehensive benefits plan, the positions below are both bonus and stock option eligible. We encourage high energy technical professionals to join in our success!

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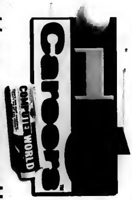

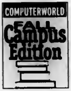

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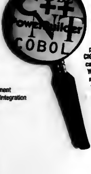

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Data Base Design Analyst: Design logical/physical data bases, coordinate data base dev applying knowledge of data base design standards/mgmt systems. Det if project req creating new programs/modifying existing programs, create req programs. Review procedures in data base mgmt system manuals, making changes to data base. Dev data model using comp software. Create description to explain how programs should access data. Write physical data base description to protect company data resources against unauthorized access. Hardware: UNIX Server Operating Systems: UNIX System V Release 4, HPUX, SCO Languages: C & SQL Software: Oracle 7.2, SQL Forms (3.0 & 4.5), SQL Menu 5/0 & PRO*C Req. Bachelor's in Computer Engineering + 2 yrs exp. $50,000/yr. Job is in Miami, FL, 40 hrs, 8:30-5:30. Submit resume to: FDLES Bureau of Operations, 1320 Executive Center Dr., Suite 110 Tallahassee, FL 32399-0667 Re Job Order # - FL 1618761

Computer Systems Engineer - Japanese Resrch/dsgn/dvlp s/ware systms, networks, printing solutions & products for Mac/x86/Unix h/ware platforms in Japanese for medical/industrial/military/communication/aerospace/scientific applics, applying principles of comp sci/engg/mathematical analysis, evaluate h/ware & s/ware interface & oper'l/performance reqmnts of overall systm, analyze/plan data processing reqmts/layout/installation/time/cost; train users; utilize fluent oral/written Japanese, & write code in Pascal, FORTRAN & C++. Reqs BS in elec engg, systms engg or closely related field. 40hr/wk, M-F, 9a-5p. $35K/yr. Resume to: FDLES Bureau of Operations, 1320 Executive Center Dr, Ste 110, Tallahassee, FL 32399-0667 Re JO# FL-1618653.

PROGRAMMER ANALYST. Plans, develops, tests and documents computer programs, applying knowledge of programming techniques and computer systems. Bachelor of Science in computer science, engineering, or math-related, and 1 and 1/2 yrs. exp. req'd. Must be able to travel. 1 and 1/2 yrs. exp. IBM 3090, OS, MVS, REXX, DB-2, JCL, CICS, VSAM. $41,000/yr. Interested applicants apply by resume to Georgia Department of Labor, Job Order #GA 6114217, 2943 N. Druid Hills Road, Atlanta, GA 30329-3909, or the nearest Department of Labor Field Service Office.

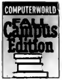
Senior Field Engineer (Ft. Lauderdale, FL): Consult, set-up, troubleshoot technical eng. operations, includ. telecine color correction & editing systems, at various video processing labs in region. Develop techniques for improvement of operational quality & design efficiency for telecine systems, relevant to SMPTE & NTSC standards. Resolve complex problems involving interaction of multiple system components. Train & provide customer/technical support for operations staff in use of highly technical equipmt. Frequent travel nationally & intern'ly (about 50% of time) to be pd. by employer. Req. 4 yrs. exp. in job or 4 yrs. exp. as telecine systems engineer; Sal. $65,000/yr, 40 hrs/wk. Submit res/ltr in dupl. to :FDLES Bureau of operations, 1320 Executive Center Dr., Ste. 110, Tallahassee, FL 32399-0667. Re. J.O. #FL-1662095

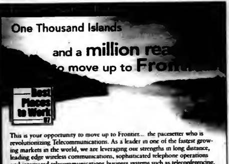
Sr Sftwr Eng'r: Dev'p, design & test client/server (C/S) systems app's w/ PowerBuilder 4/5 (PB), Sybase on UNIX using OOP Methodology; Provide clients w/pb train'g, monitor'g & co-develop't; Supervise GUI design/testing udr C/S archit'ure w/ Stored Procedure for database mngt.; work alone at client site/lead a team to design database model, optimize database mngt & train users. 40h/w, 8-5, $55k/yr, MS in Comp Sci/Eng'g, 1.5 yr as Sftwr Eng'r. Resume to FDLES 1320 Exec. Ctr. Dr. #110, Tallahassee, Fl 32399, job # 1623464.

SYSTEMS ANALYST. Analyzes user requirements, procedures, and problems to automate processing or to improve existing computer systems. Bachelor of Science degree in computer science, engineering, or math-related, and 2 yrs. exp. req'd. Must be able to travel. Two (2) yrs. exp. on case tools (synon/2E) Oracle RDBMS, 3 GLs (RPG1400, CL400, DB2/400, C, C++, COBOL) EDI (Premenos). $41,000/yr. Interested applicants apply by resume to Georgia Department of Labor, Job Order # GA 6114223, 2943 N. Druid Hills Road, Atlanta, GA 30329-3909, or the nearest Department of Labor Field Service Office.

Director-Mgt. Info. Systems (Coral Springs, FL)-Interview, direct, supervise, evaluate performance, & exercise gen mgt over systems analysts/computer consultants hired/placed by employer for its clients' int'l application systems pertaining to IBM Mainframes, VAX Systems, & client/server applications in an int'l setting. Evaluate clients' computer systems to determine skill reqmnts; negotiate contracts; develop mktg strategies. B.S. in Business or Acctg or Finance + 5 yrs exp in job offered. 40 hrs/wk, O.T. as needed; 8:30-5:30, M-F; $60K/yr. Send resumes to FDLES Bureau of Operations, 1320 Executive Center Dr. Ste 110, Tallahassee, FL 32399-0667 Re: JO#FL 1618983.

Programmer Analyst, Malden, MA, Analyze, design, develop and implement client server applications using Microsoft SQL Server, Sybase SQL Server, Oracle and Informix. Develop Financial Marketing, Warehousing and Inventory Management Systems using Visual Basic, Holos and Power Builder. Provide technical support. Req'd Bachelors in Computer Science or Engg 1 yr exp in job offered. 40 hrs/wk, 9:00am-6:00pm, $53,000/yr. Submit two (2) copies of his/her resume in response to: Case No 70604, PO Box 8968, Boston, MA 02114





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APPLICATION ENGINEER to develop HMS (Homeomorphic Metric Space) mapping techniques for high speed computing and database searching in network, develop data encoding/decoding and image compression/decompression codes for database space saving; analyze, code and debug in C++ and Fortran in Windows NT environment. Require: M.S. in Electrical Engineering. Must demonstrate ability in image compression/decompression and HMS mapping upon interview. Salary: $47,000 per year, 9am to 6 pm, M-F. Mail resume in duplicate to : Georgia Department of Labor, Job Order # GA 0114232, 2636-14 M.L. King Jr. Drive, Atlanta, GA 30311-1605 or the nearest Department of Labor Field Service Office.

System Analyst: Dvelop applications in LOTUS NOTES, LOTUS FORMS, NOTES REPORTER, LOTUS APPROACH 3.0 & NOTES VIP; utilize front end development tools such as VISUAL BASIC & POWERBUILDER, responsible for setting up Notes network on Windows, UNIX & NT servers, & setting up ACL's for Databases & Servers; support & maintain Notes users & Servers (Editing & Changing Server related documents, etc.). Req. MS in computer science; must be certified Lotus Note Consultant. 40hr/wk. 8-5pm. $60,000/yr. Apply in person or send resumes to Georgia Dept of Labor, Job Order # GA6110035, 2943 N. Druid Hills Road, Atlanta, GA 30329-3909 or the nearest Dept of Labor Field Service Office. Must have proof of legal authority to work in the U.S. Employer paid ad.

U.S. HOUSE OF REPRESENTATIVES HOUSE INFORMATION RESOURCES

ASSOCIATE ADMINISTRATOR

Job Summary: This executive level position is responsible for directing, managing, and leading House Information Resources (HIR) in the development and operation of the House's information and communications systems; formulating management and technical plans to ensure that the House's information requirements are met; preparing and managing HIR's budget; and supervising the day-to-day operations of the Office of HIR. **Requirements:** Master's degree or equivalent senior level work experience. Extensive experience in managing a multi-level technical support organization. Experience with change management and proven success in changing the culture of a technical organization. Full knowledge of computer operations activities. Demonstrated competence in a wide range of technical and administrative areas, to include the preparation of departmental budgets and major hardware and resource procurements. Ability to provide technical leadership in the various system generation activities. Ability to communicate, both orally and in writing, with elected officials and senior staff, [illegible] systems professionals, and non-technical users. Knowledge of the legislative process and environment preferred.

DIRECTOR, SYSTEMS INTEGRATION

Job Summary: This senior level [illegible] for directing and managing the Systems Integration Group in the [illegible] of new and [illegible] services. Responsibilities include planning the [illegible] of new information systems, [illegible] and implementing applications, and [illegible] are [illegible] and assessed to effectively meet the [illegible] of the House.

DIRECTOR, CLIENT SERVICES

Job Summary: This senior level [illegible] the Client Services Group in providing [illegible] support to Member's Washington and district offices, [illegible] support offices, [illegible] ensures that House offices receive the [illegible] telephone systems, information access, [illegible] services. **Requirements** for the Director, [illegible] Ability to perform duties stated in [illegible] technical/managerial disciplines. Demonstrated [illegible] to enhance organizational effectiveness through information services. [illegible] in project management and serving as a technical leader on information [illegible] and leading other personnel. Ability to communicate effectively [illegible] in writing, with information systems professional and non-technical users. Bachelor of Science degree in Computer Science/Management Information Systems or equivalent experience.

Background and criminal history records check required. All applicants will be considered without regard to race, color, national origin, religion, sex [illegible] status), disability, or age. Employment with the House is at-will. These positions are exempt under the FLSA.

Mail resume and salary requirements to : Office of Human Resources, Attention: CAO-KEF, Room 263, Cannon House Office Building, Washington, DC 20515-6610.

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If you meet these qualifications, please e-mail your resume and publication list to: **jobs@lanl.gov; fax (505) 665-1079; or mail to Human Resources Division, Los Alamos National Laboratory, Job #972552-CIC97101, MS-P286, Los Alamos, NM 87545.** Note: appropriate Job# must be inserted. Explore our web page to learn more about Los Alamos National Laboratory http://www.hr.lanl.gov EOE.

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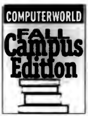
PROGRAMMER ANALYSTS Multiple positions for Programmers with 2-5 yrs experience: CICS,COBOL II-JCL-DB2-MVS 40 hr/wk, $55k-$80k/yr, Requires Bachelor degree:Computer Science, Electronics, any Engineering degree or Math. Employer is a consulting company, relocation to client sites is required. Send copy of ad and resume to: 4C SOLUTIONS, INC., Attn: Charlie Tarpley, 1201 7th St. East Moline, IL 61244, Ref-JO# 201-5



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October 31, 1997
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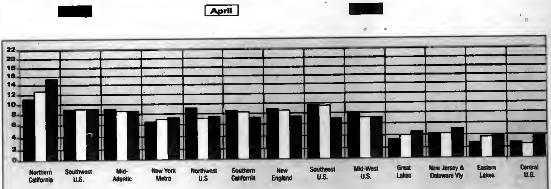

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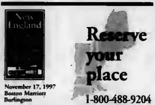

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Lawyers weren't the only ones who gladly stepped aside and let Steve work his magic. Universities, foundations, hospitals and temporary help firms all found a need for his conceptual and artistic talents.

Now, Steve is working for developers to help them dress up their apps and sites for Internet and Intranet use.

Steve is the first to admit he has no intention of being all things to all people.

Here's what Steve isn't:

"I can't write a lick of code," he says. "And frankly, I don't want to."

Here's what Steve does best:

"I am a good designer," he says. "I understand how screens are put together and I appreciate what makes a design look good."

Recently, Steve completed assignments for a health care company that needed its records access system spruced up. Another company summoned him to deck out its administrative Intranet system in various shapes and colors. Both clients found Steve to be fast, efficient and an easy-going work partner.

"What suits me best is a combination of consulting and hands-on design," he said. "I might sketch out a few ideas on a napkin or a scrap of paper." Then it's back to the office to work out the problem, and communicate via fax or email. But please, no long-term on-site assignments. "I've got a very nice wife and three terrific kids, and I'd prefer an evening with them rather than sitting in a hotel room."

For a look at Steve's work, check the samples at www.kreative.com/visuals. And don't worry about his sleeping dog, Pep, on your way in. He's a peaceful fellow who doesn't bite.

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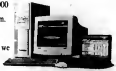
Issue Date: 6/23/97

No purchase necessary. All entries must be received no later than 11:59 am (EST) Mon, June 30, 1997. Winner will be determined in a random drawing on or about 5:00 pm (EST) Mon., June 30, See official rules within the Marketplace section.



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OFFICIAL RULES – NO PURCHASE, PAYMENT OR CONTRIBUTION NECESSARY – To enter the Sweepstakes outlined below, follow all entry instructions published in this offer. Your entry must be received by the date specified elsewhere in the offer or by 1/16/98, whichever is sooner.

Super Prize Sweepstakes – Winners will be selected in random drawings from all eligible entries received. Early Bird entries will be selected in a separate drawing from among all eligible entries. Sweepstakes begins [illegible]. Drawings will be conducted on or about 4/30/98 by Ventura Associates, Inc., an independent judging organization whose decisions are final. Drawing will be held at 1040 Avenue of the Americas, New York, NY 10018. You need not be present to win.

CONSUMER DISCLOSURE Different versions/presentations of the sweepstakes may present different prize choices. Values in a given prize level will be approximately the same. All prize winners will have the option of selecting any prize offered in [illegible]. Number, estimated maximum retail value and odds of winning each prize are as follows: 1 Grand Prize - $25,000 [illegible] of $25,000; 1 First Prize - $2,000; 1 Second Prize - $1,000; 50 Third Prizes - $[illegible]; 1,000 Fourth Prizes - $[illegible] each; 1 Early Bird Prize - $5,000. Total prize value: $102,000.00. Certain versions/presentations of the Super Prize Sweepstakes may present an Early Bird Prize. To qualify for the Early Bird Prize, if the Early Bird Prize is presented in your offer, your entry must be received by the Early Bird date specified elsewhere in this offer. Odds of winning any prize are determined by the total number of eligible entries received. Distribution of sweepstakes will not exceed 300 million. All Super Prize Sweepstakes prizes will be awarded.

Automobile, boat/trailer prizes must be picked up at local dealer. All other merchandise prizes will be shipped to winner. Boat/trailer and/or automobile title, tags, licenses and registration fees are winner's responsibility as are any other incidental expenses not specified in the offer. Trip prizes subject to availability and must be completed within 12 months of date awarded. Actual value of trips depend on location of winners and [illegible] of departure. Certain restrictions and blackout dates may apply. If a trip prize is won by a minor, minor must be accompanied by a parent or legal guardian. Winner's traveling companion will be required to sign a release of liability prior to departure. Trip prizes are on a space available basis and do not include personal purchases or incidentals. No substitution of prizes, except sponsor reserves the right to substitute a prize of equal or greater value in the event an advertised prize is unavailable.

For winners list (available after 6/30/98) send self-addressed, stamped envelope by 1/15/98 to: Super Prize Winners, P.O. Box 6193, Medford, NY 11763-6193.

THE FOLLOWING APPLIES TO THE SWEEPSTAKES ABOVE – No purchase, payment or contribution necessary to enter or win. No photocopied or mechanically reproduced entries will be accepted. Not responsible for technical malfunctions, failure of computer, telephone equipment or software, inaccurate transmission of entry information or for lost, late, misdirected, damaged, incomplete, illegible or postage-due mail. All entries become the property of sponsors and none will be returned.

Winner notification will be by mail. A winner may be required to sign and return an Affidavit of Eligibility/Liability/Publicity Release within 14 days of date printed on notification or he/she will be disqualified. Any prize/prize notification returned as undeliverable will result in disqualification. If a major prize is won by a minor it will be awarded to parent or legal guardian and the Affidavit of Eligibility and Release must be signed by the parent or legal guardian. Except where prohibited by law winners consent to the use of their names, hometowns, likenesses and photographs for advertising and publicity without additional compensation.

Sweepstakes is open to legal residents of the U.S., Canada and Europe (in those areas where made available) who [illegible] received the offer. In the event that the designated recipient of the offer has moved, the offer may not be valid in the state, country or province to which the offer has been forwarded. Void in Puerto Rico and where prohibited by law. All federal, state, provincial and local laws and regulations apply.

All prize values are in U.S. currency. No transfer of prize permitted. A winner is responsible for all taxes on his/her prize.

Canadian residents, in order to win, must first correctly answer a time-limited skill testing question administered by mail. Any litigation regarding the conduct and awarding of a prize in this publicity contest by a resident of the province of Quebec may be submitted to the Regie des alcools, des courses et des jeux.

Sweepstakes may be presented in different creative presentations by different organizations. Ventura Associates, Inc., 1040 Avenue of the Americas, New York, NY 10018, the independent judging organization has provided all prizes at no charge. Ventura Associates, Inc., reserves the right to withdraw the promotion if it becomes technically corrupted.

Employees of Sweepstakes Administrator, promoting organizations, their advertising agencies and promotional companies involved in the promotion and their families, agents, [illegible] and assignees are ineligible to participate in the sweepstakes and shall not be eligible for any prizes covered herein. The parties hereto acknowledge that [illegible] is not liable for any prize awards payable to promotion participants in violation of the law.

COMPUTERWORLD TECHNOTOYS WEEKLY SWEEPSTAKES OFFICIAL RULES: No purchase necessary. Complete official entry form or print all entry information on plain paper, including this week's prize and fax to: (800)[illegible]-2790. Incomplete entries not eligible. Sweepstakes begins 12:01 am (EST) Monday (the date of the issue). All entries must arrive by fax no later than 11:59 pm Monday of the following week. The issue date can be found in the top of most pages of this magazine. Sponsor not responsible for telephone or fax equipment failure or delayed transmission. All entries become sponsor's property & will not be returned.

Winner will be determined in a random drawing on or about 5:00 pm (EST) the Monday following the issue date. You must not be present to win. The prize (and its retail value) detailed with the entry form is guaranteed to be awarded & delivered to winner approx. 30 days after drawing date. If notification letter or prize is returned as undeliverable, it will be awarded to an alternate winner at random. No prize substitutions except due to unavailability in which case a prize of equal value will be awarded. Prize not transferable or redeemable for cash. All taxes on prize are winner's responsibility. Acceptance of prize constitutes permission (except where prohibited) to use winner's name, hometown & likeness for promotional purposes without additional compensation.

Sweepstakes is open to legal US residents, 18 & older. Odds of winning determined by total number of entries received. Est. distribution: 150,440. Sponsor: Computerworld, Inc. 500 Old Connecticut Path, Framingham, MA 01701. Employees of Computerworld, Inc., its affiliates, subsidiaries, retailers, advertising & promotion agencies & immediate families of each not eligible. All federal, state & local laws & regulations apply. Void in Puerto Rico & where prohibited by law.

For winners list (available within 4 weeks of the drawing) send a SASE to: Sweepstakes Winners, Computerworld TechnoToys Sweepstakes, 500 Old Connecticut Path, Framingham, MA 01701.

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The Week in Stocks

Gainers

Losers

PERCENT

Gainers		Losers	
Centura Software	31.9	Streamlogic Corp.(L)	-63.6
Applix Inc.	26.7	FTP Software Inc.	-21.0
Netrix Corp.	26.5	SCO Inc.(L)	-17.1
Advanced Logic Research	26.3	Proteon Inc.	-16.7
Learning Co. (The)	23.0	Intelligent Info. Systems	-14.6
Secure Computing Corp.	21.3	Reynolds and Reynolds(L)	-14.6
Forte Software	21.0	Computer Network Tech. (L)	-14.3
Xircom	15.3	Intelligent Electronics	-13.7

DOLLAR

Gainers		Losers	
Compaq Computer Corp.	7.50	Adobe Systems Inc.	-3.31
Dell Computer Corp.(H)	6.00	Seagate Technology	-2.88
Yahoo! Inc.	4.00	Reynolds and Reynolds(L)	-2.88
Netscape Comm. Corp.	3.56	Oracle Corp.(H)	-2.10
National Semiconductor	3.38	SCB Computer Tech. Inc.	-1.75
Advanced Logic Research	3.19	Phoenix Technologies	-1.38
Cisco Systems Inc.	3.13	Bellsouth Corp.(H)	-1.25
Lucent Tech.(H)	3.13	Emulex Corp.	-1.25

INDUSTRY ALMANAC

Wall Street upbeat on DG

Wall Street's opinion of Data General Corp. has been as upbeat as the company's stock. Investors who purchased shares one year ago at approximately $10 per share have seen the stock price soar to $26.

Driving the stock's rise have been seven consecutive quarters of increased earnings, fueled by market acceptance of the company's Pentium-based Aviion server and Clariion storage lines.

"I think the company has made a fairly remarkable turnaround, and I think the issue here is sustaining this string of profitability," says Shao Wang, an equity analyst at Smith Barney, Inc. in New York.

Several vendors have been focusing on Intel Corp.-based multiple processors and Windows NT offerings. "I think the challenge for any of these players, but certainly for Data General specifically, is to provide a level of differentiation," Wang says.

Peter Labe, an analyst at the Wall Street company Buckingham Research Group, says DG's strengths are its reputation, installed based and "excellent products technically."

However, analysts have mixed opinions about DG's future as an investment.

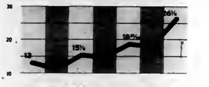
Rick Berry, an analyst at Malachi Group in Douglasville, Ga., says the stock won't get much higher than $30 in the next year, barring major disappointments.

But DG is preparing for a strong future. Last month, the company completed a $212 million convertible bond sale. "This is a very conservative company, and for them to raise that much money I think tells you they see growth in the next few years," Labe says. "I think in two to three years out, the stock will be selling at $50 without any problem."

— Patrick Thibodeau

DOUBLE TIME

Data General's stock has been slowly and dramatically rising



[illegible]

Exch	52 Week	Range		June 20 2 PM	Wk Net Change	Wk Pct Change
COMS	61.38	24.00	3COM Corp	49.63	2.00	4.4
AIT	71.75	49.63	Ameritech Corp (H)	70.63	0.75	1.1
AGND	80.25	16.13	Ascend Communications	61.38	1.19	2.0
T	43.25	30.75	AT&T	37.25	0.38	1.0
BNYN	9.25	1.10	Banyan Systems Inc	1.09	-0.03	1.6
BAY	30.63	18.38	Bay Networks Inc	28.00	2.38	12.0
BEL	70.38	50.13	Bell Atlantic Corp (H)	76.50	0.75	1.0
BLS	60.81	38.25	BellSouth Corp (H)	46.63	1.25	2.6
BRKT	42.38	8.75	Brooktrout Technology	17.50	-0.75	4.1
CS	46.50	26.50	Cabletron Systems	32.63	1.00	3.2
CSCC	81.25	23.50	Cascade Communications	29.19	0.81	2.7
CGRN	17.50	8.63	Centigram Communications	12.88	1.13	9.6
CSCO	75.38	44.75	Cisco Systems Inc	60.63	3.13	6.7
CMNT	8.38	4.13	Computer Network Tech (L)	4.19	-0.69	-14.1
DIGI	33.13	12.63	DSC Communications	25.25	1.44	6.0
FORE	33.63	10.00	FORE Systems Inc	14.50	0.13	-0.9
GDC	16.75	6.13	General DataComm Inds	8.38	0.25	3.1
GSX	46.75	36.13	General Signal Networks	45.38	-0.38	-0.8
GTE	48.38	37.75	GTE Corp	41.19	0.88	1.8
LU	72.50	50.63	Lucent Tech (H)	72.50	3.13	4.5
MADGF	16.81	4.50	Madge Networks NV	6.81	0.00	7.9
MCIC	41.63	22.38	MCI Communications Corp	38.00	0.69	1.7
MNPI	16.25	5.00	Microcom Inc	16.13	0.00	0.0
NETM	10.38	2.38	NetManage Inc	3.13	-0.13	3.8
NTRX	10.63	1.44	Netrix Corp	2.69	0.56	26.1
NCDI	10.38	3.00	Network Computing Devices	11.00	0.75	6.1
NWK	22.38	11.19	Network Equipment Tech	16.38	0.13	0.8
NETG	33.38	12.88	Network General	14.31	-0.88	3.4
NN	46.50	20.38	Newbridge Networks Corp (H)	46.00	2.75	6.0
NT	90.63	45.00	Northern Telecom Ltd (H)	89.50	-0.38	-0.4
NOVL	14.25	7.00	Novell Inc	7.00	0.38	0.3
NYN	58.88	42.00	Nynex Corp (H)	58.38	-0.63	1.1
OCTL	31.75	18.00	Octel Communications Corp	22.00	0.00	0.0
ODSI	24.50	0.75	Optical Data Systems Inc	12.88	0.25	2.0
PCTL	41.25	8.25	PictureTel Corp	10.38	0.00	0.0
PTON	3.38	1.31	Proteon Inc	1.88	-0.38	16.7
RACO	6.38	2.13	Racotek Inc (L)	2.25	-0.31	12.2
RETX	8.25	3.00	Retix	3.44	0.44	14.5
SBC	61.38	46.00	SBC Communications (H)	60.88	0.75	1.2
SFA	20.38	13.00	Scientific Atlanta Inc (H)	22.75	1.63	7.7
SHVA	25.88	8.25	Shiva Corp	11.50	0.00	0.0
FON	52.75	34.50	Sprint Corp (H)	51.00	-0.38	-0.7
SMSC	17.50	8.25	Standard Microsystems Corp	8.25	-0.88	-0.8
USW	38.50	27.25	U S West Inc (H)	37.75	0.50	1.3
XIRC	31.00	7.50	Xircom	12.25	1.63	15.3
XYLN	50.38	12.38	Xylan Corp	14.81	-0.19	1.3

[illegible]

Exch	52 Week	Range		June 20 2 PM	Wk Net Change	Wk Pct Change
ALRI	15.31	8.13	Advanced Logic Research	15.31	3.19	26.3
AAPL	27.75	13.13	Apple Computer Inc	15.50	-0.44	2.7
ASTA	7.75	3.50	AST Research Inc	3.25	0.04	1.2
CPQ	110.38	80.50	Compaq Computer Corp	100.13	7.50	7.5
DELL	120.88	20.25	Dell Computer Corp (H)	119.00	6.00	3.3
GTW	31.75	11.00	Gateway 2000 Inc (H)	33.88	2.00	6.3
HWP	60.00	37.75	Hewlett Packard Co	54.75	1.00	1.8
MUEI	31.38	6.75	Micron Electronics Inc	18.75	1.88	0.7
NIPNY	73.75	48.88	NEC America (H)	72.75	0.88	1.2
SGI	28.38	12.63	Silicon Graphics	16.63	0.38	2.2
SUNW	36.94	22.00	Sun Microsystems Inc (H)	36.94	1.25	3.5

[illegible]

Exch	52 Week	Range		June 20 2 PM	Wk Net Change	Wk Pct Change
AMH	10.00	8.13	Amdahl Corp	8.75	-0.13	1.4
DGN	26.50	9.00	Data General Corp (H)	26.25	1.25	5.0
DEC	46.00	25.00	Digital Equipment Corp	38.13	2.13	5.9
IBM	91.88	44.63	IBM	91.63	2.13	2.4
MDCD	13.38	2.88	Meridian Data Inc	4.50	0.13	2.7
NETF	5.38	1.00	NetFrame	3.81	0.03	3.6
SQNT	18.50	10.50	Sequent Computer Sys (H)	18.00	0.81	4.2
TEXM	3.88	1.00	Sequoia Systems Inc	1.38	-0.13	3.8
SRA	30.63	16.00	Stratus Computer Inc	30.63	1.50	3.2
TDM	13.23	6.63	Tandem Computers Inc (H)	14.88	0.13	0.8
UIS	7.75	5.00	Unisys Corp	7.38	0.63	9.3

[illegible]

Exch	52 Week	Range		June 20 2 PM	Wk Net Change	Wk Pct Change
ADBE	49.00	28.50	Adobe Systems Inc	36.44	3.31	12.7
AMSWA	8.75	3.75	American Software Inc	8.25	-0.25	2.9
APLX	40.00	8.13	Applix Inc	8.81	1.75	26.1
ARSW	63.75	17.00	Arbor Software	31.38	1.06	3.5
ADSK	40.88	18.00	Autodesk Inc	38.25	0.88	2.3
BGSS	32.50	18.00	BGS Systems Inc	29.75	-0.75	2.3
BMCS	57.75	25.38	BMC Software Inc (H)	38.50	3.00	5.8
BOOL	21.50	14.00	Boole and Babbage	22.00	0.25	1.5
BORL	10.88	4.75	Borland Int'l Inc	7.38	0.38	5.4
BOBJY	41.88	7.25	Business Objects	9.50	-0.75	2.6
CAYN	8.25	3.00	Cayenne Software Inc	3.81	-0.31	7.6
CNTB	6.00	1.13	Centura Software	1.94	0.47	31.0
COGNF	39.50	10.88	Cognos Inc	32.00	-0.50	1.5
CA	67.00	37.25	Computer Associates	57.88	0.13	0.2
CVN	10.00	3.13	Computervision Corp	3.88	-0.13	3.1
CPWR	50.75	36.13	Compuware Corp (H)	48.75	2.13	4.6
CSRE	32.00	10.75	Comshare Inc	12.00	-0.25	1.0
COSFF	12.63	3.00	Corel Corp	6.75	0.31	5.3
DWTI	8.75	3.00	Dataware Technologies Inc	2.38	0.19	8.3
FILE	30.75	9.13	FileNet Corp	19.81	0.38	4.1
FRTE	56.50	7.25	Forte Software	13.31	2.31	21.0
FTPS	8.50	2.31	FTP Software Inc	2.56	1.16	21.0
HUMCF	33.00	22.00	Hummingbird Comm Ltd	27.63	-0.25	-0.8
HYSW	26.00	10.13	Hyperion Software Corp	20.63	0.69	3.4
IRIC	16.50	11.00	Information Resources	14.69	0.06	0.4
IFMX	31.13	6.38	Informix Corp	9.00	0.06	0.7
INGR	13.13	6.25	Intergraph Corp	7.63	-0.06	-0.8
LEAF	7.50	0.81	Interleaf Inc	1.31	-0.13	0.7
ISLI	11.13	8.25	Intersolv Inc	8.00	-0.56	6.2
INTU	50.13	20.00	Intuit Inc	25.44	1.00	4.4
TLC	35.75	5.50	Learning Co. (The)	9.38	1.75	23.0
LGWX	15.75	4.13	Logic Works	5.75	-0.25	4.2
MAPS	18.00	7.50	MapInfo Corp	10.63	0.13	1.2
MATH	7.63	2.19	MathSoft	3.13	0.06	2.0
MCAF	68.00	27.00	McAfee Associates	61.88	3.00	4.0
MENT	17.63	8.00	Mentor Graphics	9.13	0.44	5.0
MIFGY	31.88	8.75	Micro Focus (H)	29.63	0.13	0.4
MGXI	11.13	4.00	Micrografx Inc	6.13	-0.38	5.8
MSFT	134.94	50.75	Microsoft Corp (H)	120.75	1.38	1.1
ORCL	53.00	33.13	Oracle Corp (H)	40.13	2.13	0.5
PMTC	64.25	34.00	Parametric Technology	44.00	1.94	4.5
PARQ	10.38	0.88	ParcPlace Systems Inc	1.44	0.06	-4.2
PSFT	60.13	28.25	PeopleSoft	54.63	2.88	3.0
PTEC	18.75	11.00	Phoenix Technologies	12.38	1.38	10.0
PSQL	13.75	5.50	Platinum Software	10.13	-0.19	1.8
PLAT	19.88	9.25	Platinum Technology	12.94	0.00	-0.3
PRGS	28.00	12.13	Progress Software Corp	17.75	0.63	3.6
RNBO	27.13	10.75	Rainbow Technologies Inc	18.88	0.88	4.8
REDB	31.75	5.00	Red Brick Systems Inc	7.88	-0.56	-8.3
SAPE	49.75	20.75	Sapient Corp	40.38	-0.38	0.8
SCOC	8.63	3.63	SCO Inc (L)	3.88	-0.75	17.1
SDTI	48.38	21.00	Security Dynamics Tech	36.00	3.13	9.4

Exch	52-Week	Range		June 20 2 PM	Wk Net Change	Wk Pct Change
SOTA	18.88	8.00	State of the Art	10.75	0.00	0.0
SSW	39.25	27.25	Sterling Software Inc	31.38	0.00	0.0
SDRC	27.63	15.00	Structural Dynamics Research (H)	26.63	1.75	7.0
SYBS	24.00	12.13	Sybase Inc	13.00	-0.13	0.8
SYMC	20.44	8.75	Symantec Corp	18.94	0.94	0.1
SNPS	50.50	21.75	Synopsys	35.00	0.50	1.4
SSAX	18.88	3.00	System Software Assoc	8.63	0.63	8.0
SYSF	16.00	7.38	SystemSoft Corp	11.00	-0.38	3.3
TRUV	8.00	1.50	Truevision Corp	2.44	0.19	8.7
VIEW	17.00	8.38	Viewlogic Systems	14.75	0.31	2.1
VMRK	12.00	5.00	VMark Software Inc	7.88	-0.25	-3.1
WALR	15.63	9.38	Walker Interactive Systems	14.38	-0.25	1.7
WALL	29.13	12.25	Wall Data Inc (H)	26.00	-0.06	-0.2
WANG	20.88	15.38	Wang Laboratories Inc	20.88	0.31	1.5

[illegible]

Exch	52-Week	Range		June 20 2 PM	Wk Net Change	Wk Pct Change
AMZN	36.00	13.75	Amazon.com	18.25	0.75	4.3
AOL	62.13	22.38	America On Line (H)	39.50	1.50	3.9
BBN	29.88	15.13	BBN Corp	20.00	0.13	0.6
CSRV	26.25	8.63	CompuServe Corp	11.50	0.13	1.1
EDFY	32.25	3.88	Edify Corp	13.00	0.00	0.0
LCOS	22.75	3.75	Lycos Inc	11.50	1.00	4.0
NETC	35.25	7.00	Netcom On-Line	16.38	0.13	0.8
NSCP	76.50	23.88	Netscape Comm Corp	33.13	3.50	11.3
OMKT	29.25	8.50	Open Market Inc	11.25	0.25	2.3
PSIX	15.88	6.50	PSINet	8.13	-0.63	-7.1
QDEK	10.88	2.00	Quarterdeck Corp	2.75	-0.19	-6.4
RAPT	38.75	8.00	Raptor Systems	10.25	0.06	0.5
SCUR	18.00	4.75	Secure Computing Corp	7.13	1.25	21.3
SPYG	23.63	8.88	Spyglass Inc	9.75	-0.31	3.4
YHOO	37.38	15.50	Yahoo! Inc	40.75	6.00	12.7

[illegible]

Exch	52-Week	Range		June 20 2 PM	Wk Net Change	Wk Pct Change
AMD	48.50	10.25	Advanced Micro Devices	37.38	-0.63	1.6
ADI	29.25	12.75	Analog Devices Inc	27.63	1.13	4.3
CHPS	26.50	8.00	Chips and Technologies	10.81	0.75	2.5
CRUS	24.25	6.00	Cirrus Logic	10.70	0.38	-3.4
CY	18.63	8.13	Cypress Semiconductor Corp	15.13	0.25	1.7
CYRX	40.88	11.50	Cyrix	40.63	-0.56	-2.7
INTC	169.75	64.13	Intel Corp	148.13	2.50	1.7
LSCC	62.63	19.75	Lattice Semiconductor	57.50	1.63	2.9
LSI	46.88	17.00	LSI Logic Corp	35.75	0.63	1.8
MCRL	54.50	12.00	Micrel Semiconductor Inc	49.00	0.75	1.6
MU	45.25	16.63	Micron Technology	40.75	0.00	0.0
MOT	72.50	44.13	Motorola Inc (H)	71.63	1.88	2.7
NSM	32.25	13.00	National Semiconductor	31.25	3.38	12.1
TXN	98.38	50.00	Texas Instruments	87.63	2.25	2.6
VLSI	29.25	10.38	VLSI Technology	22.13	0.38	1.7
XLNX	58.50	24.50	Xilinx	49.31	1.94	4.1
ZLG	29.38	14.88	Zilog Inc	20.50	0.06	0.3

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Exch	52-Week	Range		June 20 2 PM	Wk Net Change	Wk Pct Change
ADPT	46.88	11.50	Adaptec Inc	36.69	1.19	3.3
APCC	31.50	8.50	American Power Conversion	21.25	0.00	0.3
CBEX	8.25	0.97	Cambex Corp	1.94	-0.13	-6.0
CREAF	18.25	3.50	Creative Technology Ltd	17.13	1.75	11.4
RACE	20.00	5.00	Data Race Inc	13.50	-1.13	-7.7
DTM	12.50	3.25	Dataram Corp	9.75	-0.13	-1.3
EMC	38.75	16.50	EMC Corp	39.75	2.00	5.3
EMLX	21.25	12.88	Emulex Corp	17.75	1.25	-6.8
ESCC	29.75	19.50	Evans and Sutherland	27.75	-0.13	-0.5
EXBT	17.50	6.00	Exabyte	12.69	-0.19	1.5
IISLF	3.56	1.25	Intelligent Info Systems	1.38	-0.25	-14.6
IOM	36.63	12.63	Iomega Corp	22.38	1.88	9.1
IPLS	4.50	0.94	IPL Systems Inc	1.25	0.06	5.3
KMAG	36.75	17.00	Komag Inc	25.25	1.13	4.9
MTSI	20.75	12.88	MicroTouch Systems Inc	22.00	0.00	0.0
PNCL	10.13	0.97	Pinnacle Micro Inc	1.34	0.03	2.4
AQM	8.38	2.50	QMS Inc	2.00	-0.13	-6.0
QNTM	25.00	9.50	Quantum Corp	22.50	2.31	11.4
RDUS	3.44	0.25	Radius Inc	0.28	-0.03	-10.0
SEG	40.25	18.13	Seagate Technology	35.88	-2.88	-7.3
STK	54.38	30.00	Storage Technology	42.63	1.25	3.0
STLC	5.88	0.63	Streamlogic Corp. (L)	0.19	-0.31	-61.0
TEK	60.75	38.63	Tektronix Inc	56.00	-0.63	-1.1
WDC	38.63	30.00	Western Digital Corp	31.75	2.38	8.1
XRX	79.75	54.63	Xerox Corp (H)	74.75	2.00	2.7

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Exch	52-Week	Range		June 20 2 PM	Wk Net Change	Wk Pct Change
AMSY	33.13	25.75	American Mgmt Systems	28.00	0.13	0.5
ANLY	36.75	17.50	Analysts Int'l	25.13	-0.63	-1.7
AUD	50.13	35.63	Auto Data Processing (H)	48.25	-0.88	-1.8
BOAH	30.75	19.75	BDM International Inc	21.75	-0.81	-2.8
CATP	37.25	18.75	Cambridge Tech Partners	33.38	0.69	2.1
CEN	53.38	40.50	Ceridian Corp	43.38	2.75	6.8
CDO	30.75	15.13	Comdisco Inc (H)	25.75	0.31	1.2
CPU	30.88	13.00	CompUSA Inc	21.50	0.88	4.2
CHRZ	38.63	10.13	Computer Horizons	38.75	2.81	7.8
CSC	80.00	57.00	Computer Sciences	74.00	0.50	0.7
TSK	38.63	11.63	Computer Task Group (H)	38.63	2.88	8.1
CDAT	28.63	12.75	Control Data Systems Inc	14.88	0.38	2.5
EGGS	11.75	3.63	Egghead Discount Software	4.31	-0.25	-5.5
EDS	63.38	31.75	Electronic Data Systems Corp	42.00	0.50	1.2
INAC	40.63	15.38	Inacom Corp	31.63	1.75	5.9
INEL	10.75	2.25	Intelligent Electronics	2.75	-0.44	-13.7
KEA	60.13	30.38	Keane Inc (H)	57.94	2.31	4.2
MICA	21.00	10.88	Micro Age Inc	18.88	1.88	11.0
PAYX	40.50	25.63	Paychex	38.25	0.50	1.3
PMS	54.38	33.13	Policy Management Sys.	53.25	0.63	1.2
REY	30.63	15.75	Reynolds and Reynolds (L)	16.88	-2.88	-14.6
SCBI	30.75	14.38	SCB Computer Tech Inc	24.00	-1.75	-6.8
SEIC	25.75	17.75	SEI Corp	24.38	1.00	4.3
SMED	58.75	38.75	Shared Medical Systems	54.25	2.31	4.5
SSPE	13.50	12.75	Software Spectrum Inc	11.38	-0.13	-1.1
SDS	48.75	35.38	SunGard Data Systems	48.13	1.25	2.6
VST	20.75	8.50	VanStar Corp	11.38	1.25	12.3

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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LS 120
SuperDisk™
120MB

Midrange users get hip to millennium

CONTINUED FROM PAGE 1

Corp.'s Eclipse platforms, Hewlett-Packard Co.'s HP 3000, IBM's AS/400 and Wang Laboratories, Inc.'s Wang VS platforms have proved extremely popular in information systems shops because of their rugged, reliable nature.

Although the installed base has been rapidly dwindling over the years, analysts estimate that many of these systems are still being used in business-critical roles in midsize and large corporations.

"The main difference between these shops and mainframe-centric ones is the relative lack of skills available to them," said James Kinneman, a senior programmer analyst at Grumman Systems Support Corp. in Bohemia, N.Y.

"Most shops have systems that have been running for the past 10 or 15 years, which they haven't upgraded once since they purchased it."

These systems typically run industry-specific packaged applications or highly customized software.

> **"Today, we are at the mercy of the contract programmer."**
> **— Steve Pounds, Security Forces**

But with most new application development taking place on other platforms, vendor support and manpower for many midrange stalwarts have been rapidly shrinking.

"We are definitely a little nervous about the whole thing," said Steve Pounds, controller at Security Forces, Inc. in Charlotte, N.C. Thousands of lines of Cobol code on its aging DG Unix box have to be made compliant.

Like many other midrange users, the company has depended on a third-party programming company to support and maintain its highly customized financial package.

The Atlanta-based vendor from which Security Forces purchased its software 15 years ago is long gone.

"Today, we are at the mercy of the contract programmer," Pounds said.

"They are the only ones who know anything at all about our software, and we don't have any control over when they are actually going to be making those changes," he said.

STARTING FRESH

"What makes matters worse is that almost 70% to 80% of all the original software has been modified beyond recognition with little or no documentation," said Jim Jackson, owner of 21st Century Software, a midrange consultancy in Charlotte, N.C. "These users have no control of their software anymore."

Logan Lumber Co. in Tampa, Fla., a Wang VS system user, has been using packaged financial software it purchased from a major minicomputer application developer more than a decade ago.

Since then, the package has been sold to another software vendor, which hasn't upgraded the software in nearly eight years, and the vendor still hasn't committed to either a delivery date or pricing on a year 2000-compliant version of the package.

"We don't know yet if it is going to be a $1,000 package or a $15,000 package, so it's kind of hard to make a decision" on how to proceed with the conversion, said Bill Torrey, a partner at Softech Solutions, Inc. in Longwood, Fla., the consulting firm doing the conversion work for Logan Lumber.

"But fortunately, we still have the source code, so we can change it ourselves if we have to," said Lamar Logan, president of the company. □

TROUBLE AHEAD

Year 2000 problems specific to midrange:

- Lack of testing tools and capabilities
- Lack of conversion tools
- Lack of platform-specific skill sets

Recommendations:

- Sign up now with your 2000 service providers – supplement with minicomputer migration outfits if necessary
- Replace hardware where it's necessary
- Start year 2000 conversion work

Source: Meta Group, Inc., Stamford, Conn.

Mini makers rally the resources

Help with millennium conversions is on the way for users of midrange platforms.

Almost all of the major vendors in the midrange space have already committed to delivering year 2000-compliant versions of their hardware and operating systems by the end of this year. And analysts following the market agree that most application software vendors will follow suit.

Many vendors also have begun to offer specialized services support for year 2000 conversion.

For instance, vendors such as Hewlett-Packard, Wang and Data General have locations on their World Wide Web sites that list year 2000 resources and keep users abreast of the latest application fixes. Some vendors, such as DG, even have specialized service desks to handle year 2000 questions. DG's North American user group has started a special advertising section in its new magazine listing tools and services.

Others companies, such as Digital and Ireland-based Piercom Systems, and Wang with Peritus Software Services, have begun to offer their users automated conversion tool suites for analyzing and converting programs. — Jaikumar Vijayan

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Fight over bug payment sparks 'net ethics debate

CONTINUED FROM PAGE 1

because of a security flaw. "Don't they call it extortion — or real close to it?" asked William Orvis, a member of the Computer Incident Advisory Capability team at Lawrence Livermore National Laboratory in Livermore, Calif. "For years and years in the computer business, it's been, 'You find a bug, you tell the author.'"

INTERNET CULTURE

OLD-FASHIONED

Many still work that way. When David de Vitry in March uncovered a flaw in Macromedia, Inc.'s Shockwave browser plug-in, for example, he didn't think about seeking payment.

"The notoriety alone of me discovering the bug was probably more than they could give financially," said de Vitry, an application development manager at Poppe Tyson Interactive in New York.

He found that a hacker could write Shockwave code to read a user's electronic mail and upload messages stored on the user's system to an outside host.

"We are aware of the long tradition that's been on the Internet to report all of these bugs for free," said Christer Hasse, cofounder of the two-man Cabocomm Co. in Denmark, which discovered the latest Netscape bug.

But considering the time they put into it and the importance of the flaw, he and partner Christian Orellana decided it was fair to seek "reasonable compensation."

Netscape offers $1,000 rewards to people who find serious problems with its software, but Orellana and Hasse felt their effort was worth more.

They demonstrated that with certain programming, the bug they discovered enabled a World Wide Web site to access any file on a computer connected to it running Navigator 2.0 or 3.0 or Communicator 4.0.

The tradition of Internet altruism grew up when the network was used largely to exchange academic data, Hasse said. Commercial ventures aren't necessarily entitled to benefit from that free help, he added.

FEE FOR SERVICE

Netscape has issued about 20 $1,000 awards since its "bug bounty" program was launched in late 1995, according to Dave Rothschild, director of client product marketing at Netscape in Mountain View, Calif.

"What we have had in place has been working quite well," he said.

Netscape was able to get information about the bug from a computer at a lab that had verified the bug at the Danes' request.

A fix was posted on Netscape's Web site *(www.netscape.com)* Wednesday.

"I think Netscape handled it well," said David Spenhoff, director of product marketing at JavaSoft, Sun Microsystems, Inc.'s Java unit.

He likened it to a philosophy of not negotiating with terrorists. "[The Danish consultants] were trying to hold Netscape's users hostage."

JavaSoft doesn't plan to offer bug-finding fees. "What you want to avoid is people who set up businesses finding bugs in people's software and making their living that way," he said.

But Ira Winkler, director of technology at the National Computer Security Association in Carlisle, Pa., said he favors financial incentives to reward people who find software holes.

"It's good if people have a motive and incentive to try to find these problems," said Winkler, author of *Corporate Espionage*.

In an ideal world, a software company shouldn't have to issue rewards any more than police departments broadcast rewards for information on some heinous crimes, he said.

But money talks. "This is a good first step in dealing with reality," he said.

"I guess it's to be expected that some people are going to try to profit from these things," Orvis said. "Who knows where it will go?" □

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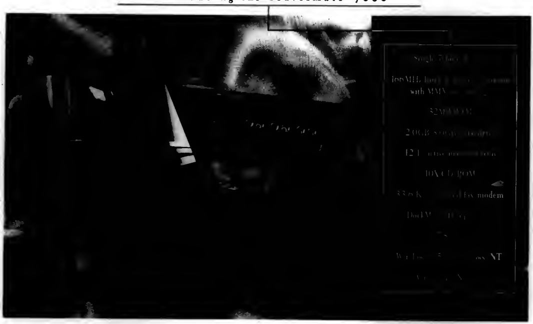
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Microsoft buy Informix? Why not?

David Coursey

It's often been speculated that what Oracle boss Larry Ellison wants most in life is to become Bill Gates. Usually this evokes a response of "Not on your best day, kid," and life continues. But in the past few months, Ellison has upped the ante a bit. He has threatened Microsoft with the Network Computer and then with an abortive (some say half-hearted) bid for Apple.

Someone in Redmond must be paying attention; there have been rumors that Microsoft is going to send the Money Truck and buy Informix, the Oracle wannabe known in Silicon Valley as much for its billboards as its database products.

For the past several years, Informix has leased a billboard on Highway 101 near Oracle's headquarters, in Redwood Shores. The billboard is always plastered with some sort of taunting reference to Oracle. It is on the northbound side, almost guaranteed to be seen by anyone leaving Oracle and heading to the airport — like customers, maybe?

A discussion about the billboards could fill this column, but I'll save that for later. Instead, let me direct your attention to Microsoft's product line. It's pretty complete except that SQL Server hasn't exactly set the world afire. Microsoft really does need some enterprise-strength database help — and an operating system to support it, some might say.

Buying Informix would give Microsoft a very nice database solution and would give notice that Larry's chances of becoming Bill are much less than Bill's chances of turning Microsoft into Oracle's nightmare.

I must tell you that I claim no special knowledge here. Bill doesn't ask for my opinion before making purchases, and if Larry knows I exist, I'd be frightened. This rumor has been around the block a few times, although recently it's being pushed by Oracle people, who don't really have much to gain by spreading it.

On the other hand, some rumors ought to become reality. No, I don't think Microsoft should own the database business, and I don't think it will. But as Oracle is fast becoming the Microsoft of data management, it's always nice to see more competition. Will Sybase and the other database companies become collateral damage? Let's hope not, but there's a strong chance that will happen even without Microsoft's help.

What would such a takeover mean for customers? Hopefully, that Microsoft would build a powerful, integrated database solution into its enterprise strategy. If there is one place where Microsoft seems weak, that's it. Of course, buying Informix also might convince Microsoft that maybe Windows NT isn't quite ready for heavy-duty enterprise work and maybe Unix isn't so bad after all.

That relates to something I've noticed repeatedly: NT seems like a great operating system if all you've known is DOS and Windows, but it's considered a weak offering to many who are looking downstream rather than upstream. Many people choke at the thought of Microsoft operating systems and databases keeping their business-critical data. And these aren't Microsoft-bashers, either, just people who'd like to depend on tools with a longer track record.

Given all this, I'd like to see Microsoft buy Informix. Then Microsoft could become a real enterprise player that supports multiple operating systems, not all of them Windows. The world, I think, would rejoice. □

Coursey, an analyst and consultant, is editor of "coursey.com," an online newsletter available at www.coursey.com. His E-mail address is david@coursey.com.

The value of vision

Frank Hayes

What's the value of IS, anyway? A few weeks back, I ended a column with the words, "If it comes down to choosing between IS and the people who actually make money for the business, you know what choice your upper management will make."

That didn't sit well with some readers. "It reinforces the idea that the only function of IS is to cater to end users, and that they are the only ones that provide the business with money," wrote one client/server specialist from New York. "How much money do you think the company would make if everyone in IS up and left at the same time? The same amount they make if all the salespeople left — nothing!"

Right. Try telling that to an IS professional whose entire department has been outsourced wholesale. Some executive with a spreadsheet calculates that an IS shop is something the company can live without, and a few months later, they're using the mainframe room as a cafeteria. You don't see that happening in sales.

And as painful, embarrassing and dispiriting as it may be, that executive is right. The proof? Companies don't come crashing down the day the IS shop dies. Matter of fact, they seem to get along just fine.

Why? Is IS really that expendable?

Yes — sometimes. Especially if IS professionals forget that their job isn't to be janitors, but visionaries.

That's a hard goal to believe in, especially in the daily grind of an IS shop. Even the words we use make IS sound like we're just cleaning up. We "maintain" and "install" and "upgrade" and "fix."

With job descriptions like that, it's tough to recognize that IS is at the very core of any large organization. But it is and has been for decades, since the bygone days when it was called "data processing" or even "the tabulating department."

Everyone else in the business either feeds IS transactions — sales orders, invoices, inventory data — or reaches into IS to get information about what the business is doing.

A CORE FUNCTION

The IS shop is where those transactions live and where the tools to handle the transactions are created and managed. It's right in the middle of everything that's most important to the organization.

Don't be confused: IS doesn't bring in money for the company, like the sales guys do. IS doesn't even create value that can be turned into money, like the people who build products or deliver services.

But IS *can* create value by using that vantage point at the center of the corporate universe to give the organization some vision.

When was the last time you tried to define the vision for an application or a network? Not the architecture — that's nuts-and-bolts, heads-down, janitorial stuff. The vision is about what you see when you look up, beyond the wires and code, at what the business and users need.

Vision isn't just for CIOs or IS managers. It's even more important for software developers and network managers and help desk staffers — the IS people who see the business up close.

Vision requires understanding your organization — weird historical artifacts, bizarre departmental politics and all. It means slogging hip-deep through the wild, chaotic jungle of real-world business. It means listening to the crankiest, most unmanageable users, and then leading them instead of catering to them.

In other words, it's not for wimps or technojanitors.

But one thing is for sure: If you're really providing vision, you won't fret over somebody saying you don't actually make money for the business. And nobody will have any doubt about exactly what value IS provides. □

Hayes is Computerworld's staff columnist. His Internet address is frank_hayes@cw.com.

The Back Page

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Dispatches & images from the fringes of the electronic frontier

Computerworld INDEX

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Number of America Online subscribers:	8M
Percentage planning to "definitely leave" AOL soon:	8%
U.S. average income:	$27,900
Average income of workers in the U.S. software industry:	$57,300
Average time for delivery of Internet E-mail:	39 min.
Cost of a conventional MBA:	$50,000
Cost of an online MBA at Duke:	$82,500
Percentage of U.S. households with three or more cellular phones:	5%
Number of videos shipped by Internet video store Reel.com:	1,000

Sources: Advertising Age, New York; Find/SVP, New York; [illegible] Associates, Arlington, Va.; Inverse Network Technology Inc., Santa Clara, Calif.; Forbes, New York; Computer Intelligence, La Jolla, Calif.; [illegible]

A DIGITAL FINGERPRINT PAD

SGS-Thomson Microelectronics in Berkeley, Calif., has developed a microchip that records fingerprints electronically on contact – without a scanner. Touch the silicon panel and the chip reads the variations of the electrical current on the skin's ridges and valleys and produces a greyscale image.

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The Shareware Industry Awards Foundation this week will induct 52 individuals, companies and programs into the online International Shareware Hall of Fame (*www.sic.org*). Among the honorees at the first-time event are shareware pioneers Jim Button, author of ButtonWare; Ward Christensen, author of XModem; Andrew Flugelman, author of PC Talk; John Friel, author of QModem; and Bob Wallace, author of PC-Write. Other inductees include Eudora, the Internet electronic-mail program, and PKWare, the authors of the popular PKZIP utility.

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The Back Page

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Computerworld INDEX

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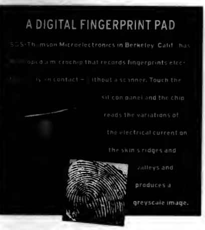

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HERE'S THE ANSWER. WHAT'S THE QUESTION?

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Adaptive Networking

Q: • ALL RIGHT, WHAT IS IT?

Adaptive Networking is a set of products and cornerstone technologies that transition today's networks to the IP-optimized networks of tomorrow. The aim of Adaptive Networking is to build networks that are invisible to users, worry-free for network managers, and strategic for the business.

Q: • WHAT DOES IT OFFER?

Our philosophy is centered around more services with less complexity. How? Through transparent scalable technologies that ensure long-term, non-disruptive network evolution; drive operational productivity at every level of the organization; and adapt to changes in network usage and business requirements.

Q: • WHAT ARE THOSE SCALABLE TECHNOLOGIES?

Bay Networks products are being developed around industry-leading cornerstone technologies: Access, Switching, IP Services, and Network Management.

Q: • WHAT ABOUT RELIABILITY?

When your network goes down, so does productivity. Not to worry. Adaptive networks are inherently more reliable and scalable thanks to symmetric multiprocessing and a distributed architecture. In other words, there's no single point of failure to bring down your network. Moreover, the system automatically reroutes traffic as needed to avoid bottlenecks. And you can easily add to, change, and modify your network without disrupting users.

Q: • HOW CAN I REDUCE NETWORK OWNERSHIP COSTS?

Adaptive networks automatically find and configure new devices to save your IT staff considerable time. And thanks to our Autosensing Technology, the system determines which users have 10Mbps or 100Mbps capabilities, for example, and matches them with the bandwidth they need.

Q: • HOW CAN WE AVOID SURPRISES?

With Optivity®, your IT staff can proactively manage all the devices in your network as one cohesive system—even if it extends across the Internet. Optivity also provides the powerful ability to visualize and analyze real-time traffic flow across your entire network. Intelligent agents monitor your network infrastructure, keeping your IT staff informed of changing conditions and often making adjustments as needed. What's more, Optivity includes analytical tools for capacity planning to help reduce budget surprises.

Q: • WILL IT WORK WITH WHAT I'VE ALREADY GOT?

Of course. It wouldn't be truly adaptive if it didn't. You can adopt this technology at your own pace in cost-justifiable increments. Adaptive Networking even makes our competitors' products smarter and faster. Good news, since you probably already own some.

Q: • CAN IT GIVE MY BUSINESS A COMPETITIVE EDGE?

Definitely. You can offer hot, new services and build closer links with customers and business partners. Should they need access to your corporate network from the Internet, you can offer secure virtual private network connections. Want to add voice-over-IP capabilities to link customers and service representatives from your Web site and reduce long-distance phone costs? Adaptive networks can do this and much more.

Q: • WILL IT WORK WITH THE LATEST APPLICATIONS?

Applications drive your network needs. That's why adaptive networks shift on the fly to match routing priorities to your applications. For example, financial transactions and video conferencing can take routing priority over e-mail packets and Web browsing.

ANY QUESTIONS?

If your network can't do all of this, it's time to start asking a few questions of your own. For a free strategy paper, visit www.baynetworks.com/adapt/a3 or call 1-800-8-BAYNET ext. 294. Adaptive Networking is exactly what your business needs. Without question.

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